

A REVIEW OF THE DISTRIBUTION OF THE *POLYRHACHIS* AND *ECHINOPLA*
ANTS OF THE QUEENSLAND WET TROPICS (HYMENOPTERA: FORMICIDAE:
FORMICINAE)

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Ninety-one species of the genus *Polyrhachis* are recorded from the Queensland Wet Tropics. Fifty-nine of these represent previously described taxa and thirty-two are recognised as new. *Polyrhachis doddi* Donisthorpe is considered a junior synonym of *P. australis* Mayr and *P. yarrabahensis* Forel a junior synonym of *P. lombokensis* Emery. The genus *Echinopla* is represented by two species. Notes on synonymy and distribution are included. □ *Hymenoptera, Formicidae, Polyrhachis, Echinopla, Australia, North Queensland, Wet Tropics, systematics, synonymy, distribution.*

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Polyrhachis is one of the world's largest and most distinct genera of ants, occurring mostly in the tropics and subtropics of the Old World. In Australia, it is one of the most common, diverse and widespread ant genera with 109 described valid species and with at least as many undescribed (Kohout & Taylor, 1990; Kohout, 1994, 1998). In contrast, the related *Echinopla* is a small genus represented in Australia by only two valid described species (Taylor, 1992) with limited distributions along the eastern coast of northern Queensland, and with one species, outside the Wet Tropics, undescribed. Both genera are characterised by monomorphism and are distinguished from the closely related *Camponotus* and *Calomyrmex* by their large first gastral tergite which forms at least half of the length of the gaster. The mesosoma and petiole in *Polyrhachis* are usually armed with spines or teeth which, in *Echinopla*, are confined to the dorsum of the strongly transverse petiolar node (Bolton, 1994; Shattuck, 1999).

A variety of nests are constructed by *Polyrhachis* species. These may be subterranean (in burrows), terrestrial (beneath logs, stones etc.), lignicolous (in plant cavities) or arboreal (Hung, 1967). Kohout (1999) summarised the range of nest types used by Australian *Polyrhachis*. Many species have the ability to use larval silk to construct nests incorporating plant debris or leaves. Hölldobler & Wilson (1990) discussed the significance of *Polyrhachis* nest behaviour in the evolution of silken nests in ants. Several nests of Wet Tropics species are shown in Fig. 3A-F.

The Wet Tropics World Heritage Area of North Queensland, Australia, stretches for about 450km along the coast between Cooktown (15°30'S) and Townsville (19°30'S). For the purposes of this paper I will follow Monteith (1995) and include Mt Elliot, a little beyond the southern boundary of the World Heritage Area proper. The Wet Tropics includes a complex series of subcoastal ranges and plateaus, with elevations often reaching 1,000-1,300m and attaining a maximum of 1,600m. The region enjoys a wet, tropical climate which, modified in parts by seasonal (monsoonal) and rainshadow effects, has induced a mosaic of tropical vegetation types ranging from fully developed rainforest to dry, open eucalypt woodlands. This small, but biologically diverse area harbours well over half of all known Australian species of *Polyrhachis* and *Echinopla*. These have been systematically collected at many localities over the last 20 years by the Queensland Museum and other institutions. This paper summarises those collections and lists 91 species of *Polyrhachis* and 2 of *Echinopla* from the area. Of these, 32 species are currently undescribed and 20 are endemic to the Wet Tropics.

Table 1 lists the species in their subgenera and summarises their distribution features including vegetation affinity, endemism, altitudinal range, and geographic range both within the Wet Tropics and through a number of distributional zones outside the Wet Tropics.

SUBGENERIC SUMMARY. Nine subgenera of *Polyrhachis* occur in the Wet Tropics. These include all known Australian subgenera apart

from the nominal subgenus *Polyrhachis* which is restricted to monsoonal rainforests on Cape York Peninsula, north of the 14°S parallel. The most speciose Wet Tropics subgenera are the more characteristic Australian subgenera, namely *Hagiomyrma*, *Hedomyrma* and *Chariomyrma*, closely followed by the subgenus *Cyrtomyrma*. The subgenera can be summarised as follows:

Campomyrma is best developed in the south and west of Australia and is poorly represented in the Wet Tropics with 11 species including 2 undescribed. Most are at their northern limit and most occur at higher elevations. Five are restricted to elevations above 750m and 4 show significant disjunctions to the south.

Chariomyrma is the least known Australian subgenus and has 22 species in the Wet Tropics, of which 9 are new. Most are ground nesting. Ten species are at their northern limits and 6 are endemics. Five are only found in lowlands and none are restricted to high elevations.

Cyrtomyrma are arboreal nesters which mostly occur in the lowlands. Of the 12 Wet Tropics species 4 are endemics, 4 are at their southern limit and 4 are at their northern limit. Their taxonomy is currently under review and 7 of the species are new.

Hagiomyrma includes mostly ground-nesting, open forest species. Of the 19 species present, 10 are undescribed. Most are at higher elevations.

Hedomyrma includes 20, mostly lignicolous, species of which 4 are undescribed and 5 are endemic. Ten are at their northern limits and 4 show significant disjunctions with southern populations. Most occur at moderate elevations.

The remaining 4 subgenera, *Myrma*, *Myrmatopa*, *Myrmhopla* and *Myrmothrinax* contain mostly lowland, arboreal-nesting, rainforest species shared with New Guinea. With just 7 species between them reported from the Wet Tropics they represent only a shadow of their actual diversity which is centred in the South East Asian tropical rainforests.

VEGETATION AFFILIATION. On the basis of collection records, species have been scored in Table 1 as being rainforest restricted (R), open forest restricted (O), occurring in both rainforest and open forest (B), or mangrove restricted (M). More than half (49) of all species are open forest specialists while 36 species are restricted to rainforest and only 5 utilise both environments. The tidal environment of Wet Tropics mangroves have been invaded by 3 species of *Polyrhachis*,

viz. *P. (Chariomyrma) sokolova*, *P. (C.) constricta* and *P. (Hedomyrma) machaon*.

ALTITUDINAL RANGE. The species have been scored in Table 1 under three elevational categories: low (L), below 200m; medium (M), from 200m to 750m; high (H), above 750m. Two thirds (64) of all species occur in the lowlands and a similar number (61) occur at medium altitude, but there is a rapid diminution above 750m where only 27 occur. Twenty one species are restricted to lowlands while 11 (7 open forest and 4 rainforest species) are found only in uplands. Only *P. (Hagiomyrma) 'Hagio 04'* and *P. (Hedomyrma) erato* attain the highest elevations available in the region (such as the summits of 1,330m Thornton Peak and/or 1,620m Mt Bartle Frere) and are clearly high altitude specialists.

ENDEMICITY. Of the 20 species which are endemic to the Wet Tropics zone, two thirds (13) are rainforest species, 6 are open forest species and 1 is found in both vegetations. This is a much higher proportion of rainforest species than in the overall fauna. Most endemics are rather widespread within the Wet Tropics area, an exception being *P. (Hedomyrma) 'Hedo 09'* which is confined to Mt Elliot.

EXTRA-LIMITAL DISTRIBUTION. The distribution of the Wet Tropics species outside of the Wet Tropics area is shown in columns F-H and L-Q of Table 1. This information is summarised on the map in Fig. 1A. The strongest affiliation of the fauna is to the south with 50 species shared with Central Queensland and 28 shared with southeast Queensland. Only 30 are shared with Cape York Pen. which is immediately adjacent to the north. The 12 species shared with New Guinea are almost all lowland, rainforest species which extend no further south than the Wet Tropics.

DISJUNCT DISTRIBUTIONS. A striking component of the Wet Tropics *Polyrhachis* fauna is a group of species which are shared with areas further south but which have substantial disjunctions between the two populations. These are typically high altitude wet sclerophyll species within the Wet Tropics which occur at localities along the western fringe of the mountain massifs such as Windsor Tableland, Mt Spurgeon, Hann Tbl, Baldy Mt and Evelyn Tbl. Disjunctions are frequently of the order of 500-700km to the Eungella/Mackay district (e.g. *P. cedarensis*, *P. femorata*, *P. mjobergi* and *P. ornata*) but some

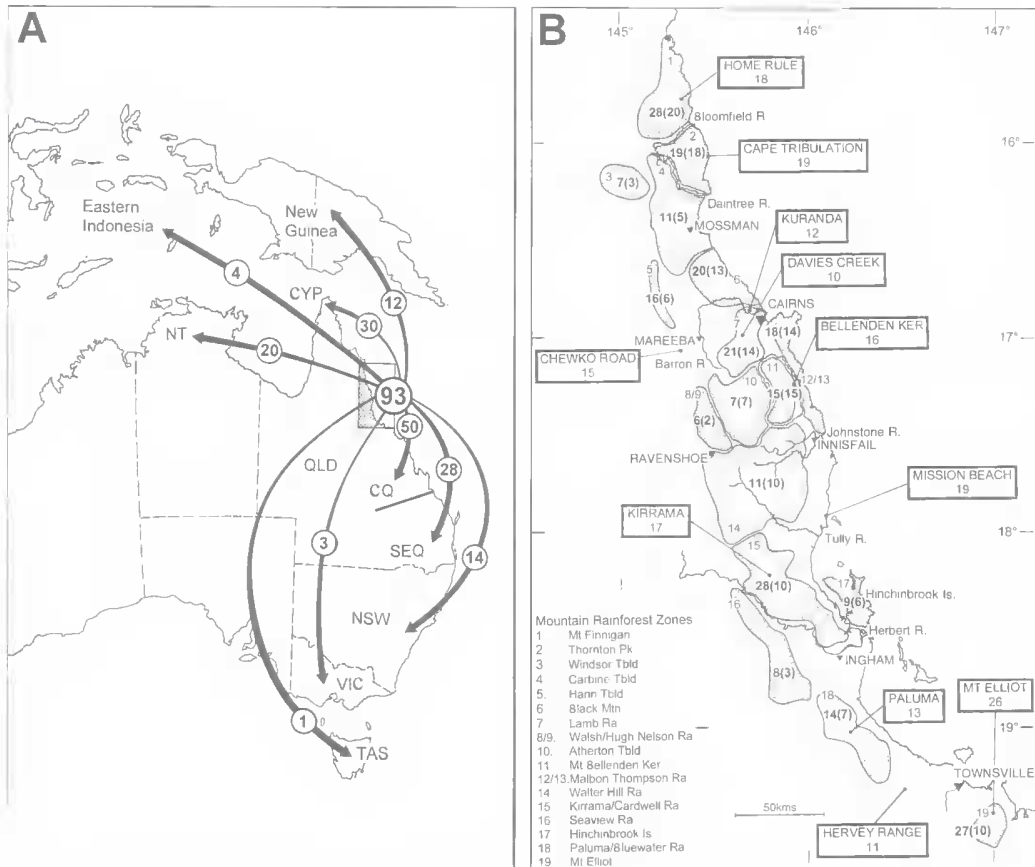


FIG. 1. A, Map of the Australian region showing location of Wet Tropics area (stippled). Numbers of species of *Polyrrhachis* and *Echinopla* shared with adjacent land areas are indicated. B, Detailed map of the Wet Tropics area showing survey zones of mountain/rainforest tracts used. Numbers of recorded species of *Polyrrhachis* and *Echinopla* are shown for each, with rainforest species in parentheses. Numbers of recorded species are also shown in boxes for several named sites where intensive collecting has taken place.

species have a greater disjunction of 950-1,200km to their nearest conspecific populations in southern Queensland (e.g. *P. 'Campo 02'*, *P. 'Hagio 18'* and *P. rufifemur*). These disjunct distributions in ants clearly parallel similar disjunction in wet sclerophyll vertebrates such as the yellow-bellied glider (*Petaurus australis*) and the white-footed dunnart (*Sminthopsis leucopus*).

DISTRIBUTION WITHIN THE WET TROPICS. The Wet Tropics region is shown in Fig. 1B. The area has been divided arbitrarily into northern (north of Cairns), central (Cairns to Tully River) and southern (south of Tully River) sectors. It is also divided into the 17 mountain rainforest zones used by the Queensland Museum during survey collecting (Monteith,

1995). There has been reasonably thorough collecting of *Polyrrhachis* within the region and it is unlikely that many more species will be discovered there. However it is clear that knowledge is still rather preliminary on the full distributions of species within the region. On a broad scale, totalling collecting records yields figures of 56 species (including 12 endemics) for the northern sector, 66 species (including 15 endemics) for the central sector, and 64 species (including 13 endemics) for the southern sector. On a narrower scale the species numbers for each of the 17 survey zones are shown in Fig. 1B with maxima of 28, 28 and 27 species being achieved for Zones 1, 15, and 19, respectively. This does not accord with result totals for flightless Coleoptera and

TABLE 1. List of species of *Polyrhachis* and *Echinopla* recorded from the Wet Tropics region. Undescribed species are referred to by Voucher Codes as used in the Queensland Museum collection. Columns A-Q indicate distributional characteristics as follows: Column A: Vegetation Affiliation - R, rainforest only; O, open forest only; B, both rainforest and open forest; M, mangroves only. Column B: Endemicity - E, endemic (restricted) to the Wet Tropics. Columns C - E: Altitudinal Occurrence - C, below 200m (L); D, 200-750m (M); E, above 750m (H). Columns F-P: North/South Distribution where presence indicated by X - F, Indonesia; G, New Guinea; H, Cape York Peninsula, north of Cooktown; I, northern Wet Tropics (Cooktown to Barron River); J, mid Wet Tropics (Cairns to Tully); K, southern Wet Tropics (Tully to Mt Elliot); L, Central Queensland (Mt Elliot to Rockhampton); M, Southeast Queensland (south of Rockhampton); N, New South Wales; O, Victoria; P, Tasmania. Q, western distribution (Northern Territory) indicated by X.

Species	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
<i>P. (Campomyrma) cedarensis</i>	O				H				X		X						
<i>P. (Campomyrma) creusa</i>	R		L	M			X	X	X		X	X					X
<i>P. (Campomyrma) femorata</i>	O				H				X	X		X	X	X	X	X	
<i>P. (Campomyrma) flavibasis</i>	R				H				X	X		X	X	X			
<i>P. (Campomyrma) inconspicua</i>	O		L					X	X	X	X	X					X
<i>P. (Campomyrma) insularis</i>	O		L	M			X	X	X	X		X	X				X
<i>P. (Campomyrma) io</i>																	
<i>P. (Campomyrma) polymnia</i>	●				H						X	X					
<i>P. (Campomyrma) prometheus</i>	O		K	M						X	X	X					X
<i>P. (Campomyrma) 'Campo 01'</i>	O		L								X						X
<i>P. (Campomyrma) 'Campo 02'</i>	O				H				X	X			X				
<i>P. (Chariomyrma) constricta</i>	M		L					X	X	X							X
<i>P. (Chariomyrma) cyrus</i>	O		L	M			X		X	X	X		X				
<i>P. (Chariomyrma) gab</i>	O		L	M				X	X	X	X						X
<i>P. (Chariomyrma) heinlethii</i>	O		L						X			X	X				
<i>P. (Chariomyrma) hookeri</i>																	
<i>P. (Chariomyrma) lata</i>	●		L	M	H			X	X	X	X	X	X				
<i>P. (Chariomyrma) lownei</i>	●			M	H				X	X	X	X					
<i>P. (Chariomyrma) obscura</i>	R			M							X	X					
<i>P. (Chariomyrma) punctiventris</i>	O		L	M	H						X	X	X				
<i>P. (Chariomyrma) schoopae</i>	●		L	M	H				X	X	X	X					
<i>P. (Chariomyrma) senilis</i>	O		L	M	H			X	X	X	X	X					X
<i>P. (Chariomyrma) sokolova</i>	M		L			X	X	X	X		X	X					X
<i>P. (Chariomyrma) vermiculosa</i>	O		L								X	X	X	X			
<i>P. (Chariomyrma) 'Chario 01'</i>	R	E		M	H				X	X	X						
<i>P. (Chariomyrma) 'Chario 04'</i>	R	L	L						X	X	X						
<i>P. (Chariomyrma) 'Chario 05'</i>	O		L	M						X	X	X	X				
<i>P. (Chariomyrma) 'Chario 06'</i>	R	C		M	H				X	X							
<i>P. (Chariomyrma) 'Chario 08'</i>	O		C	M					X		X	X					
<i>P. (Chariomyrma) 'Chario 10'</i>	●	E	E	M					X	X	X						
<i>P. (Chariomyrma) 'Chario 11'</i>	O			M						X		X	X				X
<i>P. (Chariomyrma) 'Chario 13'</i>	O	L	L	M					X		X						
<i>P. (Chariomyrma) 'Chario 15'</i>	O	L		M						X							
<i>P. (Cyrtomyrma) australis</i>	O		L	M							X	X	X	X			
<i>P. (Cyrtomyrma) debilis</i>	R		L	M	H		X		X	X							
<i>P. (Cyrtomyrma) mackayi</i>	O		L							X		X	X	X			
<i>P. (Cyrtomyrma) pilosa</i>	X			M							X	X	X	X			
<i>P. (Cyrtomyrma) yorkana</i>	R		L					X	X	X							
<i>P. (Cyrtomyrma) 'Cyrtio 03'</i>	●		L	M	H			X	X	X	X	X					
<i>P. (Cyrtomyrma) 'Cyrtio 04'</i>	R	L	L							X							
<i>P. (Cyrtomyrma) 'Cyrtio 05'</i>	R		L	M				X	X	X							
<i>P. (Cyrtomyrma) 'Cyrtio 06'</i>	R		L	M				X	X	X	X						
<i>P. (Cyrtomyrma) 'Cyrtio 07'</i>	R	E		M						X							

TABLE 1 cont.

Species	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
<i>P. (Cyrtomyrma) 'Cyрто 08'</i>	R	E	L	M					X	X							
<i>P. (Cyrtomyrma) 'Cyрто 09'</i>	R	E	L								X						
<i>P. (Hagiomyrma) anmon</i>	O			M	H				X	X	X	X	X	X	X		
<i>P. (Hagiomyrma) crawleyi</i>	O		L					X			X	X					X
<i>P. (Hagiomyrma) lachesis</i>	O		L	M				X	X	X	X	X					
<i>P. (Hagiomyrma) lydiae</i>	O		L	M							X	X	X	X			
<i>P. (Hagiomyrma) penelope</i>	O		L	M					X	X	X	X					
<i>P. (Hagiomyrma) schenckii</i>	O		L	M			X	X	X	X	X	X					X
<i>P. (Hagiomyrma) thusnelda</i>	O		L	M					X	X	X	X					
<i>P. (Hagiomyrma) trapezoidea</i>	O		L	M	H			X	X	X	X	X					X
<i>P. (Hagiomyrma) tubifera</i>	O		L	M	H			X	X	X	X	X	X				
<i>P. (Hagiomyrma) 'Hagio 03'</i>	O		L					X			X						X
<i>P. (Hagiomyrma) 'Hagio 04'</i>	R	E			H				X	X	X						
<i>P. (Hagiomyrma) 'Hagio 10'</i>	O		L					X	X	X	X						
<i>P. (Hagiomyrma) 'Hagio 11'</i>	O		L	M				X		X	X	X					X
<i>P. (Hagiomyrma) 'Hagio 14'</i>	O	E		M						X							
<i>P. (Hagiomyrma) 'Hagio 16'</i>	O			M							X	X					
<i>P. (Hagiomyrma) 'Hagio 17'</i>	O	E	L	M						X	X						
<i>P. (Hagiomyrma) 'Hagio 18'</i>	O				H				X				X				
<i>P. (Hagiomyrma) 'Hagio 20'</i>	O	E			H				X		X						
<i>P. (Hagiomyrma) 'Hagio 21'</i>																	
<i>P. (Hedomyrma) argentosa</i>	B		L	M	H				X	X	X	X					
<i>P. (Hedomyrma) barretti</i>	R		L	M				X	X	X	X						
<i>P. (Hedomyrma) cleopatra</i>	R			M							X	X					
<i>P. (Hedomyrma) clio</i>	R		L	M	H			X	X	X		X	X	X			X
<i>P. (Hedomyrma) clotho</i>	O		L					X			X	X					
<i>P. (Hedomyrma) cupreata</i>	B		L	M				X	X	X	X						X
<i>P. (Hedomyrma) daemeli</i>	O		L	M	H				X	X	X	X	X				
<i>P. (Hedomyrma) erato</i>	R				H					X		X	X				
<i>P. (Hedomyrma) euterpe</i>	O		L	M						X	X	X	X				
<i>P. (Hedomyrma) hermione</i>	R	E	L	M					X	X	X						
<i>P. (Hedomyrma) machaon</i>	M		L								X		X	X			
<i>P. (Hedomyrma) mjobergi</i>	O			M							X	X	X	X			
<i>P. (Hedomyrma) ornata</i>	O				H				X			X	X	X	X		
<i>P. (Hedomyrma) rufifemur</i>	O			M	H				X	X			X	X			
<i>P. (Hedomyrma) thais</i>	R	E	L	M					X	X	X						
<i>P. (Hedomyrma) turneri</i>	O		L	M				X	X	X	X	X					
<i>P. (Hedomyrma) 'Hedo 05'</i>	R			M					X	X	X	X	X				
<i>P. (Hedomyrma) 'Hedo 07'</i>	R	E	L	M					X	X							
<i>P. (Hedomyrma) 'Hedo 09'</i>	R	E		M							X						
<i>P. (Hedomyrma) 'Hedo 13'</i>	R	E	L	M					X	X	X						
<i>P. (Myrma) foreli</i>	R		L	M			X	X	X	X	X						
<i>P. (Myrmatopa) lombokensis</i>	R		L			X	X	X	X	X							
<i>P. (Myrmhopla) dives</i>	O		L			X	X			X							X
<i>P. (Myrmhopla) mucronata</i>	R		L			X	X	X	X	X	X						
<i>P. (Myrmhopla) rustica</i>	O			M						X		X					
<i>P. (Myrmothrinax) delicata</i>	R		L						X	X	X						X
<i>P. (Myrmothrinax) queenslandica</i>	R		L				X	X		X							
<i>Echinopla australis</i>	R		L				X	X	X	X	X	X					
<i>Echinopla turneri</i>	R		L								X	X					

Hemiptera for the same zones which yielded maxima for Zones 4, 7 and 11 (Monteith, 1995). However, Monteith included only rainforest taxa in that study. For *Polyrhachis* the inclusion of open forest elements obscures the rainforest pattern. The rainforest-only figures for *Polyrhachis* in the survey zones are shown in parentheses in Fig. 1B. The figures for *Polyrhachis* are probably also skewed because of high species numbers having been obtained from certain key localities where repeated collections have been made. Figures for these localities are entered on Fig. 1B. These maxima of 26 for Mt Elliot, 19 for Cape Tribulation, 18 for Home Rule, 15 for Chewko Road and 17 for Kirrama may be approaching complete lists for these particular sites because of the intensity of collecting undertaken.

METHODS

Synonyms of individual species are listed only where relevant to the context of this paper. For full synonymy citations see Bolton (1995), Dorow (1995) and Kohout (1998).

Unless otherwise indicated, all locality data listed below refer to the Queensland Wet Tropics area as delimited by Monteith, 1995 (see Fig. 1B). The numbering of voucher specimens representing new species (e.g. 'Campo 01', 'Hedo 05', etc.) corresponds with the system used in the *Polyrhachis* study collection in the Queensland Museum, Brisbane. Most of the material listed is lodged in the QMBA and/or ANIC collections.

Abbreviations. Collectors: CJB, C. J. Burwell; DJC, D. J. Cook; JPH, J. & P. Hasenpusch; HJ, H. A. Janetzki; RJK, R. J. Kohout; BBL, B. B. Lowery; GBM, G. B. Monteith; SKR, S. K. Robson; RWT, R. W. Taylor; GT, G. I. Thompson. Other abbreviations used in specimen data are: Bch, Beach; Ck, Creek; I., Island; JCU, James Cook University; NP, National Park; Pen., Peninsula; R., River; Ra., Range; Rd, Road; SF, State Forest; Tbl, Tableland; w, worker/s; Xing, Crossing.

Institutions (with the names of cooperating curators) are: ANIC, Australian National Insect Collection, Canberra, Australia (Drs S.O. Shattuck, R.W. Taylor); BMNH, The Natural History Museum, London, U.K. (Barry Bolton, C. Taylor); HNHM, Hungarian Natural History Museum, Budapest, Hungary (Dr J. Papp); MCSN, Museo Civico di Storia Naturale 'Giacomo Doria', Genoa, Italy (Drs R. Poggi, V. Raineri); MHNG, Muséum d'Histoire Naturelle, Geneva, Switzerland (Drs C. Besuchet, I. Löbl,

B. Merz); MNHU, Museum für Naturkunde, Humboldt-Universität, Berlin, Germany (Dr F. Koch); MVMA, Museum of Victoria, Melbourne, Australia (Dr A. Neboiss); NHMB, Naturhistorisches Museum, Basel, Switzerland (Dr M. Brancucci); NHMW, Naturhistorisches Museum, Vienna, Austria (Drs M. Fischer, S. Schödl); NRMS, Naturhistoriska Riksmuseet, Stockholm, Sweden (Drs K.-J. Hedqvist, F. Ronquist); OXUM, Hope Entomological Collections, University Museum, Oxford, U.K. (Dr C. O'Toole); QMBA, Queensland Museum, Brisbane, Australia (Drs C.J. Burwell, G.B. Monteith).

Genus *Polyrhachis* Fr. Smith, 1857
Subgenus *Campomyrma* Wheeler, 1911

Polyrhachis (Campomyrma) cedarensis Forel, 1915

Polyrhachis (Campomyrma) leae v. *cedarensis* Forel, 1916: 114.

Polyrhachis cedarensis Forel; Kohout & Taylor, 1990: 511. Raised to species.

MATERIAL. Cedar Ck nr Ravenshoe (E. Mjöberg) (*leae cedarensis* syntype series MHNG) (w, ♀).

REMARKS. The syntypes are the only specimens of *P. cedarensis* I have seen from the Wet Tropics area. This species has also been collected from Eungella NP, Finch Hatton Gorge (RJK acc. 75.172/2).

Polyrhachis (Campomyrma) creusa Emery, 1897 (Fig. 4A)

Polyrhachis creusa Emery, 1897: 577.

(For full synonymy citations see Kohout & Taylor, 1990: 514 and Kohout, 1998: 506).

MATERIAL. Mt Webb NP, 15°04'S, 145°07'E, 27-30.iv.1981 (J.E. Feehan) (w); Black Mtn Rd, nr Kuranda, 350m, 6-8.v.1961 (J.L. & M. Gressitt) (w); Kirrama, 30.iv.1989 & 4-10.iv.1993 (C.J. Hill) (w); Kirrama Ra., nr JCU Field Stn, 18°11'S, 145°44'E, c. 600m, 4.vi.1996 (RJK et al. acc. 96.15) (w).

REMARKS. *Polyrhachis creusa* is a ground-nesting species, predominantly in wet sclerophyll and rainforest. It ranges from the Bismarck Archipelago to northern Australia where it has been collected near Darwin in the Northern Territory and in Queensland from Cape York Pen. south to Mackay.

Polyrhachis (Campomyrma) femorata Fr. Smith, 1858

Polyrhachis femoratus Fr. Smith, 1858: 73.

MATERIAL. Windsor Tblld, NW, 16°13'S, 144°59'E, 1100m, 23-24.xi.1997 (GBM, DJC & CJB) (w); Baldy Mt Rd, 17°20'S, 145°25'E, 1130m, 30.xi.1997-5.ii.1998 (GBM, DJC & CJB) (w).

REMARKS. *Polyrhachis femorata* extends from about Mackay south to Victoria and Tasmania with a single collection in South Western Australia (S.J. Curry). The two workers from Baldy Mt Rd and a single worker from Windsor Tblld are remarkably similar to the other available material, and represent an isolated, disjunct population of this southern species in high altitude wet sclerophyll habitat in the Wet Tropics. It is an inhabitant of open *Eucalyptus* forests or, less commonly, wet sclerophyll forests. It is a lignicolous species which favours hollow tree branches as nesting sites.

***Polyrhachis (Campomyrma) flavibasis*
Clark, 1930**

Polyrhachis (Campomyrma) flavibasis Clark, 1930: 16.

MATERIAL. Windsor Tblld, 16°15'S, 145°02'E, 1060m, 8.ii.1998 (GBM & DJC) (w); Hann Tblld (Nth End), 16°49'S, 145°11'E, 950-1000m, 11-14.xii.1995 (GBM, GT & DJC) (w); Atherton Tblld, Yungaburra distr., Gadgarra SF, iv.1996 (A. Cutter & J. King) (w); Kenny Rd, 17°28'S, 145°32'E, 850m, 25.xi.1994-10.i.1995 (GBM & JPH) (w); Millaa Millaa Falls, 17°30'S, 145°37'E, 16.v.1995 (GBM) (w).

REMARKS. Originally described from Brooklana and Dorrigo on the northern NSW coast, *P. flavibasis* ranges northwards along the eastern slopes of the Great Dividing Range. It appears that the northern borders of the Wet Tropics are its northern limit. It is a rainforest dwelling species nesting in various plant cavities, such as hollow twigs and small tree branches.

***Polyrhachis (Campomyrma) inconspicua*
Emery, 1887**

Polyrhachis inconspicua Emery, 1887: 225.

Polyrhachis thalia Forel, 1902: 530. Synonymy by Taylor, 1989: 24.

REMARKS. *Polyrhachis inconspicua* is a widespread species extending from Barrow I. in Western Australia, across the Northern Territory to Queensland where it has been collected from Torres Strait islands south to about Mackay. I have not seen any specimens of this species from the Wet Tropics area proper, however, Taylor (1989:24-25) lists its distribution from 1-degree grid cells 16/145, 17/145 and 18/146 which are all within the designated area.

***Polyrhachis (Campomyrma) insularis*
Emery, 1887**

Polyrhachis inconspicua var. *insularis* Emery, 1887: 226.

Polyrhachis insularis Emery; Taylor, 1989: 25. Raised to species.

MATERIAL. Capt. Cook Hwy, c. 10km NW of Ellis Bch, 16°40'S, 145°34'E, 8.vi.1996 (RJK et al. acc. 96.33) (w); Kamerunga, 10km NW of Cairns, 16°53'S, 145°41'E (ANIC coll.) (w); Chewko Rd, 2-3km SW of Mareeba, 17°01'S, 145°24'E, 23-25.ii.2000 (RJK et al. acc.2000.44) (w).

REMARKS. This species ranges from New Guinea south to the Northern Territory and from Torres Strait islands and Cape York Pen. south to southern Queensland. It is a ground-nesting species restricted to open forests and woodlands.

***Polyrhachis (Campomyrma) io*
Forel, 1915**

Polyrhachis (Campomyrma) thalia var. *io* Forel, 1915: 114.
Polyrhachis io Forel; Taylor, 1989: 25. Raised to species.

MATERIAL. Chewko Rd, 2-3km SW of Mareeba, 17°01'S, 145°24'E, 23-25.ii.2000 (RJK et al. acc.2000.44) (w).

REMARKS. Two workers collected along Chewko Rd are the only known specimens of this rare species from Queensland. They match closely the vouchers of *P. io* in ANIC and QMBA (Katherine Gorge, NT, 12.vii.1986, A.N. Andersen). The type series was collected at Derby in north-western Australia by Eric Mjöberg. The only other records came more recently from Kununurra in Western Australia (J.D. Majer) and from Katherine Gorge in Northern Territory (BBL).

***Polyrhachis (Campomyrma) polymnia*
Forel, 1902**

Polyrhachis polymnia Forel, 1902: 532.

MATERIAL. Mt Halifax, summit, 19°07'S, 146°23'E, 21.iii.-10.v.1991 (DJC) (w).

REMARKS. A single specimen is the only record of *P. polymnia* from the Wet Tropics. This rare species was originally described from Mackay and, besides the types, it is known from a few additional collections (Conway Ra., Brandy Ck Rd, RJK, and Cedar Ck Falls, 15km SE Proserpine, BBL). It is very similar to *P. maculata* Forel and their relationship was discussed by Taylor (1989: 25).

***Polyrhachis (Campomyrma) prometheus*
Santschi, 1920**

Polyrhachis (Campomyrma) prometheus Santschi, 1920: 566.

MATERIAL. Chewko Rd, 2-3km SW of Mareeba, 17°01'S, 145°24'E, 23-25.ii.2000 (RJK et al. acc.2000.42) (w); Townsville (F.P. Dodd) (*prometheus* syntype series NHMB) (w); Townsville Field Training area/Tabletop, 19°27'S, 146°24'E, ii.1999 (A. Ash #76) (w).

REMARKS. *Polyrhachis prometheus* is an uncommon, ground-nesting, species of open sclerophyll forests. It occurs patchily from Groote Eylandt in the Northern Territory to Croydon in the Queensland Gulf Country and from Mareeba south to Rundle Ra. near Gladstone.

***Polyrhachis (Campomyrma)* sp.
(*'Campo 01'*)**

**Polyrhachis (Campomyrma) micans* r. *ops* var. *rufa* 'Crawley, 1921: 97.

**Polyrhachis (Campomyrma) micans ops rufa* 'Crawley; Taylor, 1986: 34. Unavailable name.

MATERIAL. Townsville, 11.xii.1902 (F.P. Dodd #203) (w) of the original series in ANIC, BMNH and QMBA.

REMARKS. The original series of the quadri-nominal infrasubspecies '*P. (Campomyrma) micans ops rufa*' was allegedly collected by F.P. Dodd at Townsville in the early 1900s. However, I have seen no specimens from elsewhere in Queensland. The only recent records of this rare species are from Nourlangie Rock, Kakadu NP (RJK) and Groote Eylandt (A.N. Andersen) in the Northern Territory. Since Dodd collected around Darwin himself in 1908/09 (Montcith, 1991) the Townsville record may be erroneous.

***Polyrhachis (Campomyrma)* sp.
(*'Campo 02'*)**

MATERIAL. Windsor Tblld, NW, 16°13'S, 144°59'E, 1100m, 23-24.xi.1997 (GBM, DJC & CJB) (w); Mt Spurgeon, 4km NNE of Stewart Ck, 16°24'S, 145°13'E, 1250-1300m, 15-20.x.1991 (GBM, DJC, HJ & L. Roberts) (w); ditto, 1200-1250m, 17-19.x.1991 (ditto) (w); Carbine Tblld, 1330m, 27-28.xi.1990 (GBM, GT, DJC, R. Sheridan & HJ) (w); Tully, xi.1991 (P. Stumkat) (w).

REMARKS. This new species is intermediate between *P. femorata* Fr. Smith and *P. flavibasis* Clark. It is apparently an inhabitant of higher altitude, mostly wet sclerophyll forests, and has also been recorded from Dawes Ra., D'Aguilar Ra., Tamborine Mt. and Lamington NP in south-eastern Queensland. Its occurrence in the Wet Tropics is a disjunction of 900km from the southern localities.

Subgenus *Chariomyrma* Forel, 1915

***Polyrhachis (Chariomyrma) constricta*
Emery, 1897**

Polyrhachis constricta Emery, 1897: 584 (footnote).

MATERIAL. Low I., 16°23'S, 145°33'E, 14.viii.1954 (M.J. Mackerras & E.N. Marks) (w); Bellenden Ker (M. Podenzana) (*constricta* holotype w MCSN).

REMARKS. *Polyrhachis constricta* was described from a specimen collected at Bellenden Ker but, besides the holotype and a single specimen from each of Horn and Low Islands, I have not seen other specimens from Queensland. However, in recent years the species has been more frequently collected in the Northern Territory (A.N. Andersen, RJK). It closely resembles small specimens of *P. sokolova* (var. *degener*) and the two are sympatric in suitable localities in northern coastal mangrove forests.

***Polyrhachis (Chariomyrma) cyrus*
Forel, 1901**

Polyrhachis cyrus Forel, 1901a: 32.

Polyrhachis urania Forel, 1902: 516. Synonymy by Kohout, 1998: 511.

MATERIAL. Mt Molloy, 14.ix.1981 (BBL) (w); Chewko Rd, 2-3km SW of Mareeba, 17°01'S, 145°24'E, 23-25.ii.2000 (RJK et al. acc. 2000.43) (w); Mt Elliot NP, 25.v.1980 (BBL) (w); Alligator Ck, Bowling Green Bay NP, 19°26'S, 146°57'E, 2.vi.1996 (RJK et al. acc. 96.9) (w).

REMARKS. The relationships of *P. cyrus* and its Australian form described by Forel in 1902 as *P. urania* was discussed by Kohout (1998:511). This is an uncommon species ranging from the Bismarek Archipelago and mainland Papua New Guinea to Queensland where it has been infrequently collected as far south as Fraser Island. It favours moist areas in open forests or rainforest edges. It nests in the ground with the entrance usually covered with a rock or piece of wood.

***Polyrhachis (Chariomyrma) gab* Forel, 1879**

Polyrhachis guerini r. *gab* Forel, 1879: 116.

Polyrhachis gab Forel; Dalla Torre, 1893: 262. Raised to species.

(For full synonymy citations see Kohout, 1988a: 50 and Kohout & Taylor, 1990: 515).

MATERIAL. Hann Tblld (Nth Base), 16°48'S, 145°12'E, 500m, 11-14.xii.1995 (GBM, GT & DJC) (w); Granite Gorge, 17°02'S, 145°21'E, 450m, 26.xi.1997 (GBM, DJC & CJB) (w); Townsville, 13.viii.1944 (F.C. Bishop) (w); Mt Elliot NP, Alligator Ck, 19°26'S, 146°57'E, 2.ix.1977 (RJK acc. 77.8) (w).

REMARKS. *Polyrhachis gab* is the least common species of the *gab* species-complex. Its distribution extends across northern Australia from the Northern Territory to Queensland, where it is known from the Gulf Country and Cape York Pen. and as far south as Mt Elliot. It is predominantly a ground-nesting species, mostly in open sclerophyll forests and savannah woodlands. For comments on biology, distribution and synonymy see Kohout (1988a: 49-51).

Polyrhachis (Chariomyrma) heinlethii
Forel, 1895

Polyrhachis heinlethii Forel, 1895: 47.

Polyrhachis heinlethii var. *sophiae* Forel, 1902: 521. Synonymy by Kohout & Taylor, 1990: 514.

MATERIAL. Capt. Cook Hwy, c. 10km NW of Ellis Bch, 16°40'S, 145°34'E, 8.vi.1996 (RJK et al. acc. 96.33) (w).

REMARKS. The single specimen collected just north of Cairns is the only record from the Wet Tropics and extends the range of this species as listed by Kohout & Taylor (1990:514) by more than 500km. It is a ground-nesting species from open forests and woodlands, common in suitable localities from Mackay to southern Queensland.

Polyrhachis (Chariomyrma) hookeri
Lowne, 1865

Polyrhachis hookeri Lowne, 1865: 334.

(For full synonymy citations and other comments see Kohout & Taylor, 1990: 515 and Kohout, 1994: 136 and 1998: 511).

MATERIAL. Forty Mile Scrub, 18°05'S, 144°53'E, 5.v.1990 (BBL) (w); Kirrama Ra., nr JCU Field Stn, c. 600m, 18°11'S, 145°44'E, 4.vi.1996 (RJK et al. acc. 96.15) (w); Hervey Ra., Turtle Rock area, 19°24'S, 146°31'E, c. 500m, 3.vi.1996 (RJK et al. acc. 96.11) (w); Mt Elliot NP, Alligator Ck, 19°26'S, 146°57'E, 11.vi.1987 (RJK acc. 87.91) (w).

REMARKS. This common species was described from Sydney and reaches its northern limit within the Wet Tropics. The specimens from Forty Mile Scrub differ somewhat from the other available material, however, for the purpose of this paper I regard them as an isolated population of *P. hookeri*. This species lives in open sclerophyll forests and woodlands where it nests either in the soil under rocks or logs, between grass roots or, occasionally, in pieces of decaying wood lying on the ground.

Polyrhachis (Chariomyrma) lata
Emery, 1895

Polyrhachis guerini subsp. *lata* Emery, 1895: 357.

Polyrhachis lata Emery; Kohout & Taylor, 1990: 515. Raised to species.

MATERIAL. Annan R. Xing, 3km SE, 15°33'S, 145°14'E, 10.vi.1996 (RJK acc. 96.35) (w); Home Rule, 15°45'S, 145°17'E, c. 200m, 9-11.vi.1996 (RJK et al. acc. 96.43) (w); Black Mtn Rd, 4km N of Kuranda, 16°47'S, 145°38'E, 21.vii.1980 (RJK acc. 80.102) (w); Stratford, Cairns, 16°53'S, 145°44'E, 10.viii.1989 (RJK acc. 89.4) (w); Atherton (E. Mjöberg) (*gab aegra* syntype w MHNQ, NRMS); Bell Peak North, Malbon Thompson Ra., 17°05'S, 145°53'E, 800-900m, 19-22.xi.1990 (GBM & GT) (w); Mill Ck, above, 17°30'S, 145°27'E, 1000m, 5.ii.1999 (GBM & DJC) (w); Sth Mission Bch, 10km WbyN, 17°56'S, 146°00'E, 18-19.vii.1980 (RJK acc. 80.51) (w); Cardwell Ra., Murray R. Falls, 18°09'S, 145°49'E, 1-5.viii.1983 (RJK acc. 83.4) (w); Kirrama Ra., nr JCU Field Stn, c. 600m, 18°11'S, 145°44'E, 4.vi.1996 (RJK et al. acc. 96.15) (w); Hinchinbrook I., Gayundah Ck, 18°21'S, 146°14'E, <100m, 8-18.xi.1984 (GBM) (w); Cardwell Gap, 18°32'S, 146°11'E, 120m, 4-12.ii.1998 (GBM & DJC) (w); Hervey Ra., Turtle Rock area, 19°24'S, 146°31'E, 3.vi.1996 (RJK et al. acc. 96.43) (w); Mt Elliot NP, Alligator Ck, 19°26'S, 146°57'E, 2.x.1977 (RJK acc. 77.4) (w).

REMARKS. *Polyrhachis lata* mostly occurs in open forests and savannah woodlands, but has also been collected in rainforest and wet sclerophyll forest. It is known from Torres Strait south to Rundle Ra. near Gladstone.

Polyrhachis (Chariomyrma) lownei
Forel, 1895

Polyrhachis hookeri r. *lownei* Forel, 1895: 44.

Polyrhachis lownei Forel; Kohout & Taylor, 1990: 515. Raised to species.

MATERIAL. Windsor Tblld, SE, 16°18'S, 145°05'E, 850m, 9.ii.-17.v.1998 (GBM & DJC) (w); Hann Tblld Radar Stn, 16°55'S, 145°15'E, 950m, 26-27.xi.1998 (GBM, P. Bouchard & A. O'Toole) (w); Kuranda, 10mi W, 3.viii.1975 (BBL) (w); Kirrama, 15.iv.1976 (P.J.M. Greenslade) (w); Kirrama Ra., nr JCU Field Stn, c. 600m, 18°11'S, 145°44'E, 4.vi.1996 (RJK et al. acc. 96.15) (w); Mt Spec, 5mi W of summit, 14.viii.1975 (BBL) (w).

REMARKS. This is an uncommon species which has been infrequently collected at higher altitude wet sclerophyll or rainforest localities. It ranges patchily from Windsor Tblld south to Mackay.

Polyrhachis (Chariomyrma) obscura
Forel, 1895

Polyrhachis hookeri r. *obscura* Forel, 1895: 44.

Polyrhachis obscura Forel; Kohout & Taylor, 1990: 516. Raised to species.

MATERIAL. Mt Elliot NP, above St Margaret Ck, c. 350m, 27.vii.1980 (BBL) (w).

REMARKS. *Polyrhachis obscura* is evidently very rare and, apart from the types collected at

Mackay, the short series from St Margaret Ck are the only specimens known to me.

Polyrhachis (Chariomyrma) punctiventris
Mayr, 1876

Polyrhachis punctiventris Mayr, 1876: 73.

MATERIAL. Hervey Ra., Turtle Rock area, 19°24'S, 146°31'E, c.500m, 3.vi.1996 (RJK et al. acc. 96.11) (w).

REMARKS. This is the only record of *P. punctiventris* from the Wet Tropics. It is relatively rare with a patchy distribution from Townsville south to near Maryborough in southeastern Queensland. It is a ground-nesting inhabitant of open forests.

Polyrhachis (Chariomyrma) schoopae
Forel, 1902
(Figs 2A, 4B)

Polyrhachis appendiculata r. *schoopae* Forel, 1902: 520.

Polyrhachis schoopae Forel; Kohout & Taylor, 1990: 519.
Raised to species.

MATERIAL. Roaring Meg Valley, 16°04'S, 145°25'E, 680m, 20.xi.-9.xii.1993 (GBM) (w); Pilgrim Sands, NE of Cape Tribulation, 16°04'S, 145°28'E, 25.viii.1988 (R. Raven, Churchill & J. Gallon) (w); Mt Hemmant, 6km SW of Cape Tribulation, 16°06'S, 145°24'E, 25.iv.1983 (GBM & DJC) (w); Yarrabah, c. 9km E of Cairns, 16°54'S, 145°51'E, 22-24.vii.1980 (RJK acc. 80.117) (w); Hann Tbl'd Radar Stn, 16°55'S, 145°15'E, 800-900m, 8.ii.1996 (GBM) (w); Atherton Tbl'd, Yungaburra distr., Centre for Rainforest Studies, iv.1996 (A. Cuttler & J. King) (w); Hervey Ra., Turtle Rock area, 19°24'S, 146°31'E, c. 500m, 3.vi.1996 (RJK et al. acc. 96.11) (w).

REMARKS. *Polyrhachis schoopae* is predominantly a rainforest or wet sclerophyll forest dwelling species distributed from Cape Tribulation south to Mackay.

Polyrhachis (Chariomyrma) senilis
Forel, 1902

Polyrhachis gab var. *senilis* Forel, 1902: 520.

Polyrhachis senilis Forel; Kohout, 1988a: 50. Raised to species.

(For full synonymy citations see Kohout, 1988a: 50).

MATERIAL. Helenvale, 15°42'S, 145°13'E, 10-20.vii.1976 (P. Filewood) (w); Davies Ck, 15km E of Mareeba, 17°00'S, 145°34'E, 15.vi.1980 (RJK acc. 80.27) (w); Chewko Rd, 2-3km SW of Mareeba, 17°01'S, 145°24'E, 23-25.ii.2000 (RJK et al. acc.2000.48) (w); Paluma, ix.1997 (B. Hoffman) (w); Mt Elliot NP, Alligator Ck, 19°26'S, 146°57'E, 2.x.1977 (RJK accs 77.3, 7) (w).

REMARKS. This species is restricted to northern Australia and ranges from the Kimberly district in Western Australia, across the Northern Territory to Queensland where it has been

collected as far south as Newry I. near Mackay. It inhabits mainly open forests and savannah woodlands and is common at suitable localities. It nests mostly in the soil or in rotting logs. On Cape York Pen. it frequently nests in termite mounds of *Amitermes* or *Nasutitermes* species.

Polyrhachis (Chariomyrma) sokolova
Forel, 1902
(Figs 2B, 3A)

Polyrhachis sokolova Forel, 1902: 522.

Polyrhachis sokolova var. *degener* Forel, 1910: 84. Synonymy by Kohout, 1988b: 436.

Polyrhachis sokolova Forel; Kohout, 1999: 221. Combination in *P. (Chariomyrma)*.

MATERIAL. Low I., 16°23'S, 145°33'E, 14.viii.1954 (M.J. Mackerras & E.N. Marks) (w); Port Douglas, 16°29'S, 145°28'E, 24.x.1982 (P. Davie) (w); Hinchinbrook I., Gayundah Ck, 18°21'S, 146°14'E, 8-18.xi.1984 (GBM) (w); Round Hill Landing, c. 15km SE of Cardwell, 18°22'S, 146°07'E, 1.xi.1984 (GBM) (w); Magnetic I., Cockle Bay, 12.xi.1996 (SKR #118) (w); Townsville Town Common, Three Mile Ck, 20.viii.1995 (SKR #01) (w).

REMARKS. As discussed earlier (Kohout, 1988b:436, 1999:221) *P. sokolova* holds a unique position within the Australian ant fauna by building their nests in the mud of the intertidal zone. This remarkable nesting habit has recently been studied in Darwin Harbour in the Northern Territory (Nielsen, 1997). Its known distribution extends from eastern Indonesia and New Guinea to New Caledonia. In Australia it occurs along the northern and eastern coastline from the Bonaparte Archipelago in Western Australia to the Northern Territory and from Torres Strait south to Gladstone.

Polyrhachis (Chariomyrma) vermiculosa
Mayr, 1876

Polyrhachis guerini var. *vermiculosa* Mayr, 1876: 74.

Polyrhachis vermiculosa Mayr; Kohout & Taylor, 1990: 520.
Raised to species.

MATERIAL. Ross R., 25.ix.1997 (A.J. King #001) (w); Townsville, Field Training area/Tabletop, 19°27'S, 146°24'E, ii.1999 (A. Ash #99) (w); Bowling Green Bay NP, ix.1997 (B. Hoffman) (w).

REMARKS. *Polyrhachis vermiculosa* extends from northern Queensland south to Sydney in New South Wales. It is a common species in southeastern Queensland, but becomes less frequent north of the Tropic of Capricorn, with the northern limits of its distribution around Townsville.

Polyrhachis (Chariomyrma) sp.
(*Chario 01')

MATERIAL. Mt Hartley, 15°46'S, 145°19'E, 500-700m, 11.vi.1996 (CJB) (w); Windsor Tblld SE, 16°18'S, 145°05'E, 850m, 9.ii.-17.v.1998 (GBM & DJC) (w); Davies Ck, 15km E of Mareeba, 17°00'S, 145°34'E, 15.vi.1980 (RJK acc. 80.23) (w); Kurrumba Ra., nr JCU Field Stn, c. 600m, 18°11'S, 145°44'E, 4.vi.1996 (RJK et al. acc. 96.15) (w).

REMARKS. This is a spectacular new species structurally similar to the Australian *P. schoopae* Forel. However, its colour scheme gives it a striking resemblance to the New Guinean *P. laciniata* Emery. Its distribution appears limited to the Wet Tropics.

Polyrhachis (Chariomyrma) sp.
(*Chario 04')

**Polyrhachis (Chariomyrma) hookeri* f. *townei* v. *bellendenensis* Forel, 1915: 109.

**Polyrhachis (Chariomyrma) hookeri obscura bellendenensis* Forel; Taylor, 1986: 34. Unavailable name.

MATERIAL. Mt Hedley, 1-2km N of Home Rule, 15°45'S, 145°17'E, 200-300m, 11.vi.1996, rainforest, RJK acc. 96.44 (w, ♀); Pilgrim Sands, c. 1km NW of Cape Tribulation, 16°04'S, 145°28'E, <10m, 12-15.vi.1996 (RJK acc. 96.47) (w); McLean Ck, c. 19km SbyW of Cape Tribulation, 16°15'S, 145°26'E, 15.vi.1996 (RJK acc. 96.54) (w); Bellenden Ker (E. Mjöberg) (**hookeri obscura bellendenensis* unique w NRMS); Mission Bch, 17°45'S, 146°00'E, 1996 (SKR #799) (w); Rocky Ck Xing, 6km W of Tully, 17°55'S, 145°53'E, 22.ix.1980 (BBL) (w); Broadwater Park, via Ingham, 18°22'S, 145°57'E, 400m, 3.i.1987 (S. Hamlet) (w).

REMARKS. This species was originally described from a unique specimen collected by Eric Mjöberg on Bellenden Ker. However, as it was described as a quadrinomen, the name is unavailable. It is a relatively common, rainforest-dwelling species, apparently endemic to the Wet Tropics.

Polyrhachis (Chariomyrma) sp.
(*Chario 05')

MATERIAL. Chewko Rd, 2-3km SW of Mareeba, 17°01'S, 145°24'E, 23-25.ii.2000 (RJK et al. acc. 2000.48) (w); Forty Mile Scrub, 18°05'S, 144°53'E, 5.v.1990 (BBL) (w); Hervey Ra., Turtle Rock area, 19°24'S, 146°31'E, c. 500m, 3.vi.1996 (RJK et al. acc. 96.11) (w, ♀); Alligator Ck, Bowling Green Bay NP, 19°26'S, 146°57'E, 2.vi.1996 (RJK et al. acc. 96.9) (w).

REMARKS. This new species is related to *P. lata* Emery. It differs by the distinctly less rugose pronotal dorsum and the metathoracic spiracles situated on prominent, posteriorly projecting

tubercles, not unlike those in *P. tubifera* Forel or *P. stigmatifera* Kohout. Additional records outside the Wet Tropics are from Cape Hillsborough, Britton Ra., Rockhampton and as far south as Coolool NP, north of Brisbane.

Polyrhachis (Chariomyrma) sp.
(*Chario 06')

MATERIAL. Mt Hartley, 15°46'S, 145°19'E, 200-500m, 11.vi.1996 (CJB) (w); Atherton Tblld, Yungaburra district, Donaghy's Corridor, iv.1996 (A. Cuttlet & J. King) (w).

REMARKS. This species appears intermediate between *P. obscura* Forel and *P. 'Chario 04'* above. It appears to be endemic to the Wet Tropics.

Polyrhachis (Chariomyrma) sp.
(*Chario 08')

MATERIAL. Black Mtn, NW base, 15°40'S, 145°13'E, 10.vi.1996 (CJB) (w); Bakers Blue Mtn, 17km W of Mt Molloy, 12.ix.1981 (GBM & DJC) (w); Hann Tblld, 16°48'S, 145°12'E, 500m, 11-14.xii.1995 (GBM, GT & DJC) (w); Wallaman Falls, 18°35'S, 145°48'E, 28.ix.1987 (RJK acc. 87.100) (w).

REMARKS. This is a new species with some similarity to *P. 'Chario 05'*. However, it lacks the projecting metathoracic spiracles and is more stoutly built, with the mesosomal dorsum relatively wide. It occurs from Cooktown south to Mackay.

Polyrhachis (Chariomyrma) sp.
(*Chario 10')

MATERIAL. Annan R. Xing, 3km SE, 15°33'S, 145°14'E, 10.vi.1996 (RJK acc. 96.35) (w); Chewko Rd, 2-3km SW of Mareeba, 17°01'S, 145°24'E, 23-25.ii.2000 (RJK et al. acc. 2000.48, 63) (w, ♀); Stn Mission Bch, 2km NbyW, 17°55'S, 146°05'E, 18-19.vii.1980 (RJK acc. 80.82) (w); Cardwell Ra., Murray R. Falls, 18°09'S, 145°49'E, 1-5.viii.1983 (RJK acc. 83.4); Mt Elliot NP, Alligator Ck, 19°26'S, 146°57'E, 11.vi.1987 (RJK acc. 87.95) (w).

REMARKS. This new species has more-or-less obtuse pronotal shoulders, resembling those of *P. obtusa* Emery from New Guinea and eastern Indonesia. However, it differs in several characters, including a more slender body, heavily sculptured pronotal dorsum and the propodeal and petiolar spines distinctly less divergent. It is known only from the Wet Tropics.

Polyrhachis (Chariomyrma) sp.
(*Chario 11')

MATERIAL. Chewko Rd, 2-3km SW of Mareeba, 17°01'S, 145°24'E, 23-25.ii.2000 (RJK et al. acc. 2000.48) (w).

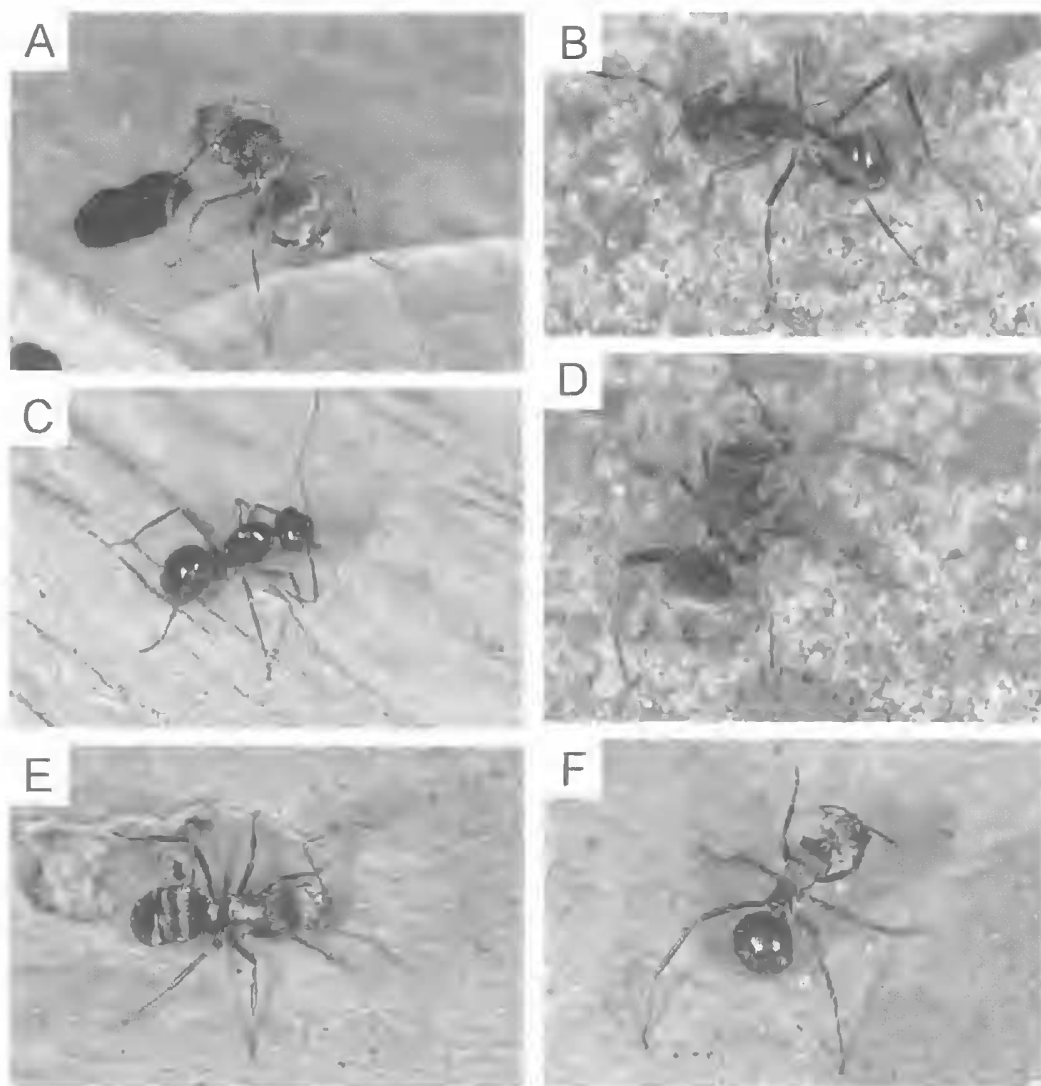


FIG 2. Living workers of representative Wet Tropics *Polyrhachis* species. A, *P. (Chariomyrma) schoopae*; B, *P. (Chariomyrma) sokolova*; C, *P. (Cyrtomyrma) australis*; D, *P. (Hagiomyrma) thusnelda*; E, *P. (Hedomyrma) argentosa*; F, *P. (Hedomyrma) turneri*. (Photographs, Jeff Wright, QM)

REMARKS. A single specimen collected near Mareeba is the only record of this new species from the Wet Tropics. It is undoubtedly related to *P. schoopae* Forel, featuring similar, intricately carved, lateral margins of the mesosomal dorsum. However, besides other characters, it differs by its distinctly smaller size. It has also been collected at East Alligator R. in the Northern Territory and elsewhere in Queensland from Mackay south to Brisbane.

***Polyrhachis (Chariomyrma)* sp.
(**Chario* 13')**

MATERIAL. Station Ck, upper, 16°37'S, 145°14'E, 370m, 3-11.ii.1999 (GBM & DJC) (w); Barratt Ck, c. 4km ESE of Daintree, 16°16'S, 145°21'E, 21.vii.1980 (RJK acc. 80.101) (w); Porter Ck, 23km SE of Cardwell, 18°26'S, 146°08'E, 26.ii.2000 (RJK et al. acc. 2000.68) (w); Wallaman Falls, 18°35'S, 145°48'E, 28.ix.1987 (RJK acc. 87.100) (w); Mt Elliot NP, Alligator Ck, 19°26'S, 146°57'E, 2.x.1977 (RJK acc. 77.7) (w).

REMARKS. This is yet another new species apparently related to *P. obtusa* Emery. It shares with that species (and with *P. 'Chario 10'*) the more-or-less obtusely spinose pronotal shoulders but it differs in having relatively wide mesonotal and propodeal dorsa and the propodeal spines distinctly broader at their bases. It is known only from the Wet Tropics.

Polyrhachis (Chariomyrma) sp.
(*'Chario 15'*)

MATERIAL. Chewko Rd, 2-3km SW of Mareeba, 17°01'S, 145°24'E, 23-25.ii.2000 (RJK et al. acc.2000.48) (w).

REMARKS. A short series from Mareeba represents the only known specimens of this spectacular new species. It is immediately recognisable by its small size, widely diverging, short, propodeal spines and distinctly rounded propodeal dorsum.

Subgenus *Cyrtomyrma* Forel, 1915

Polyrhachis (Cyrtomyrma) australis
Mayr, 1870
(Figs 2C, 4C)

Polyrhachis australis Mayr, 1870: 945.

Polyrhachis (Cyrtomyrma) nox Donisthorpe, 1938: 249. Synonymy by Kohout & Taylor, 1990: 513.

Polyrhachis (Cyrtomyrma) doddi Donisthorpe, 1938: 263. Syn. nov.

(For full synonymy citations see Kohout & Taylor, 1990: 513 and Kohout, 1998: 527)

MATERIAL. Seaview Ra., Mt Fox Crater, 18°51'S, 145°48'E, 15.xii.1986 (GBM, GT & S. Hamlet) (w); Townsville, 17.v.1902 (F.P. Dodd) (*doddi* syntype w, ♀, ♂ BMNH); Townsville (F.P. Dodd) (*townsvillei* syntype w, ♀, ♂, BMNH); Townsville, 15.v.1902 (F.P. Dodd) (w); Townsville, JCU Campus, 19°15'S, 146°45'E, 13.iii.1996 (SKR #284) (w); Hervey Ra., Turtle Rock area, 19°24'S, 146°31'E, c. 500m, 3.vi.1996 (RJK et al. acc. 96.11) (w).

REMARKS. When Donisthorpe described *P. nox* and *P. doddi*, he separated them by including the former into a group with 'shoulders toothed or angled' and the latter into a group with 'shoulders rounded'. However, I have directly compared syntypes of both species and found them taxonomically inseparable, with the outline of their shoulders virtually identical. Further examination of hundreds of specimens from across the whole distribution range supports my opinion that both forms are a single biological species. *Polyrhachis australis* ranges from just north of Townsville south to northern New South Wales and is common in suitable localities.

Polyrhachis (Cyrtomyrma) debilis
Emery, 1887

Polyrhachis laevior var. *debilis* Emery, 1887: 240.

Polyrhachis (Cyrtomyrma) debilis Emery; Donisthorpe, 1938: 265. Raised to species.

MATERIAL. Mt Hemmant, 6km SW of Cape Tribulation, 16°07'S, 145°25'E, 25.iv.1983 (GBM & DJC) (w); Cairns, Botanic Gardens, 16°54'S, 145°45'E, 1996 (SKR, #647) (w); Pine Ck CSIRO Tower, 17°00'S, 145°50'E, 80m, 22.x.1991 (GBM, DJC & HJ) (w); Babinda, 17°21'S, 145°56'E, 4.viii.1975 (BBL); Palmerston NP, 17°37'S, 145°40'E, 400m, 4.v.1997 (SKR #551) (w, ♀, ♂); Mission Beh. 17°45'S, 146°00'E, 10m, 1996 (SKR #648) (w, ♂).

REMARKS. A New Guinea-based species similar to *P. yorkana* Forel and their close relationship is considered below under that species. In Australia it is apparently limited to the Wet Tropics.

Polyrhachis (Cyrtomyrma) mackayi
Donisthorpe, 1938

Polyrhachis (Cyrtomyrma) mackayi Donisthorpe, 1938: 258.

MATERIAL. Mission Beh, 17°52'S, 146°05'E, 10m, 19.x.1996 (SKR #646) (w).

REMARKS. This species is very similar to *P. rastellata* (Latreille) from south-east Asia and both were considered synonymous by Than (1978). I have examined the syntypes of *P. mackayi* and a number of specimens of *P. rastellata* from India and Sri Lanka (some identified by Than) and compared them with abundant material of *P. mackayi* from Queensland and northern New South Wales. I found them undoubtedly related, but differing in a number of characters, including the shape of pronotal dorsum and configuration of the petiolar spines. Therefore I believe that the two names represent closely related, but distinct species. *P. mackayi* is relatively common, with its main distribution range extending from about Mackay south to Taree in northern New South Wales. It also occurs in northern Queensland, but is relatively rare towards the northern limits of its distribution. *Polyrhachis rastellata* was earlier listed for Australia (Kohout & Taylor, 1990), but now appears to be an extralimital element.

Polyrhachis (Cyrtomyrma) pilosa
Donisthorpe, 1938

Polyrhachis rastellata x. *laevior* var. *pilosa* Forel, 1902: 527. *Polyrhachis (Cyrtomyrma) rastellata* var. *pilosa* Donisthorpe, 1938: 256. First available use of '*P. rastellata laevior pilosa*' Forel.

Polyrhachis pilosa Donisthorpe; Kohout & Taylor, 1990: 518. Raised to species.

MATERIAL. Crystal Ck NP, 18°59'S, 146°09'E, c. 330m, 11.i.1977 (BBL) (w); Mt Elliot NP, North Ck, 500-800m, 2.xii.1986 (GBM, GT & S. Hamlet) (w).

REMARKS. Two specimens listed are the only records of this species from Wet Tropics. It is not uncommon within its main distribution which is essentially identical to that of *P. australis* and *P. mackayi*.

Polyrhachis (Cyrtomyrma) yorkana

Forel, 1915

(Fig. 3B)

Polyrhachis (Cyrtomyrma) rastellata var. *yorkana* Forel, 1915: 110.

Polyrhachis yorkana Forel, Kohout & Taylor, 1990: 321. Raised to species.

MATERIAL. Cape Tribulation, 16°04'S, 145°28'E, 16.vi.1997 (SKR #583) (w); Trinity Bch, 17km NNW of Cairns, 16°47'S, 145°41'E, 13.v.1974 (RJK acc. 74.28) (w, ♀); 'Cape York' (E. Mjöberg) (*rastellata yorkana* syntype w NRMS, MILING, ANIC, QMBA); Russel R., Bellenden Ker landing, 1-9.xi.1981 (GBM & Earthwatch Exp.) (w, ♀).

REMARKS. *Polyrhachis yorkana* is similar to *P. debilis* and the two were considered synonyms by Than (1978). Both share the peculiar variability in development of the propodeal spines. These may be sharp, upturned denticles, or present only as tubercles, or completely absent, even within a single colony. However, the species differs in a number of characters and, for the purpose of this paper, I consider *P. yorkana* distinct from *P. debilis*. The distribution of *P. yorkana* appears to be centred on the Wet Tropics, however, it has also been recorded from Wenlock R. on Cape York Pen. (P. Filewood).

Polyrhachis (Cyrtomyrma) sp.

('Cyrt03')

MATERIAL. Home Rule, 15°45'S, 145°17'E, 9-11.vi.1996 (RJK et al. 96.39, 40) (w, ♀, ♂); Mt Hartley, 15°46'S, 145°19'E, 500-700m, 11.vi.1996 (CJB) (w); Pilgrim Sands, 1km NW of Cape Tribulation, 16°04'S, 145°28'E, 12-15.vi.1996 (RJK acc. 96.47) (w); Canopy Crane site, Cape Tribulation, 16°06'S, 145°27'E, 20-21.ii.2000 (RJK accs 2000.21, 23, 25, 28, 29, 31, 34, 39) (w); Oliver Ck, 16°08'S, 145°26'E, 14.vi.1996 (RJK acc. 96.53) (w); McLean Ck, c.19km Sby W of Cape Tribulation, 16°15'S, 145°26'E, 15.vi.1996 (RJK acc. 96.54) (w); O'Donoghues Falls, 16°26'S, 145°20'E, 15-16.v.1995, 150m (GBM, Ford & Slaney) (w); Julatten, 16°37'S, 145°20'E, 2.v.1990 (BBL) (w); Black Mt Rd, 4km N of Kuranda, 16°47'S, 145°38'E, 21.vii.1980 (RJK acc.80.104) (w); Harin Tbid, 16°49'S, 145°11'E, 1000m, 11-13.xii.1995 (DJC) (w); Kennedy Hwy, 4km ESE of Kuranda, 16°50'S, 145°40'E, 12.v.1974 (RJK accs 74.25, 26) (w, ♀, ♂); Yarrabah, c. 11km E of Cairns, 16°56'S, 145°52'E, 22-24.vii.1980 (RJK acc. 80.111) (w);

Bellenden Ker, Cableway Base Stn, 8-23.iv.1987 (E. Dahms & G. Sarnes) (w); Russell R., Bellenden Ker Landing, 1-9.xi.1981 (GBM & Earthwatch Exp.) (w); Atherton Tbid, xii.1983 (J. Sedlacek) (w); 'The Boulders', c. 6km W of Babinda, 17°20'S, 145°52'E, 1990 (W. Travers) (w, ♀, ♂); Josephine Falls, 17°26'S, 145°51'E, 12.ii.1996 (GBM) (w); Seymour Ra., c. 7km N of Innisfail, 17°28'S, 146°01'E, <100m, 5-6.vi.1996 (RJK et al. accs 96.22, 30) (w, ♀, ♂); Garradunga, 17°28'S, 146°01'E, 7.xi.1996 (JPH) (w); Palmerston NP, 17°37'S, 145°48'E, 350-400m, 2.i.1990 (GBM) (w); Stn Mission Bch, 6km W, 17°56'S, 146°02'E, c. 20m, 5.vi.1996 (RJK et al. accs 96.17) (w, ♀); Kirrama Ra., c. 9km W of Kennedy, 18°12'S, 145°52'E, c. 110m, 31.x.1999 (SKR #808) (w); Hinchinbrook I., Gayundah Ck, 18°21'S, 146°14'E, <100m, 8-18.xi.1984 (GBM) (w); Townsville, JCU Campus, 19°15'S, 146°45'E, 21.viii.1995 (SKR #4) (w).

REMARKS. This is the most common *Cyrtomyrma* species north of Townsville where it virtually replaces *P. australis*. It extends from Cape York Pen. south to Mackay.

Polyrhachis (Cyrtomyrma) sp.

('Cyrt04')

MATERIAL. Caravonica, 10km NW of Cairns, 16°51'S, 145°41'E, 19.v.1996 (SKR #316, 317) (w); Babinda, Double Barrel Ck, 25.i.1994 (C.J. Hill) (w, ♀).

REMARKS. This species is intermediate between *P. 'Cyrt05'*, below, and the Indonesian *P. rastellata goramensis* Emery, originally described from Goram I. However, it differs from the former by its larger size and from both species in having the pronotal dorsum with only an indication of humeral angles. These, in *P. 'Cyrt05'*, are produced into distinct teeth while in *P. rastellata goramensis* the shoulders are evenly and widely rounded. *P. 'Cyrt04'* also differs in having the lateral petiolar spines only slightly longer than the dorsal pair, while these are distinctly elongated in *P. rastellata goramensis*. The distribution of this species is apparently limited to the Wet Tropics.

Polyrhachis (Cyrtomyrma) sp.

('Cyrt05')

MATERIAL. Home Rule, 32km S of Cooktown, 15°45'S, 145°18'E, x-xi.1974 (T.P. Tebble) (w, ♀); Mt Hartley, 15°46'S, 145°19'E, 500-700m, 11.vi.1996 (CJB) (w); Cape Tribulation NP, 16°04'S, 145°27'E, 6.xii.1985 (RJK acc. 85.6) (w); Canopy Crane site, Cape Tribulation, 16°06'S, 145°27'E, 20-21.ii.2000 (RJK acc. 2000.40) (w, ♀, ♂); Noah Ck, 16°08'S, 145°25'E, 13-19.x.1980 (GBM) (w); McLean Ck, c. 19km Sby W of Cape Tribulation, 16°15'S, 145°26'E, 15.vi.1996 (RJK acc. 96.54) (w); Daintree R. Xing, 16°15'S, 145°23'E, 16.vi.1997 (SKR #555, 557, 559, 561, 563, 565, 569, 571, 575,) (w, ♀); Oak Bch, 16°36'S, 145°31'E, 10m,

18.v.1998 (GBM) (w); Caravonica, 10km NW of Cairns, 16°51'S, 145°41'E, 2.iii.1996 (SKR #241.316) (w, ♀, ♂); Lake Placid, 16°52'S, 145°40'E, 18.x.1995 (SKR #57) (w); Cairns, Botanic Gardens, 16°54'S, 145°45'E, 18.i.1997 (SKR #465, 490, 493) (w, ♀); Russell R., Bellenden Ker landing, 17°16'S, 145°56'E, 1-9.xi.1981 (GBM & Earthwatch Exp.) (w); Bellenden Ker, Cableway Base Stn, 17°16'S, 145°53'E, 8-23.iv.1987 (E.C. Dahms & G. Sarnes) (w); Babinda, Double Barrel Ck, 25.i.1994 (C.J. Hill) (w, ♀); Mission Bch, 17°52'S, 146°05'E, 10m, 5.vi.1996 (SKR #405) (w, ♀); Sth Mission Bch, 6km W, 17°56'S, 146°02'E, 5.vi.1996 (RJK) (w).

REMARKS. This species is characterised by its relatively highly arched mesosomal dorsum with a distinct depression at the propodeal suture, pronotal shoulders with well-defined teeth and a lack of propodeal spines. It is common from Cape York Pen. south to near Mission Beach.

Polyrhachis (Cyrtomyrma) sp.
(*'Cyrt' 06'*)

MATERIAL. Parrot Ck, upper, 15°48'S, 145°16'E, 300m, 22.xi.1998 (GBM & P. Bouchard) (w); Pilgrim Sands, c. 1km NW of Cape Tribulation, 16°04'S, 145°28'E, 1.i.1991 (R. Kirching) (w); Cape Tribulation, 16°04'S, 145°28'E, 9.v.1997 (SKR #550) (w); Noah Ck, S of Cape Tribulation, 16°08'S, 145°25'E, 13-19.x.1980 (GBM) (w); ditto, 25-28.vii.1993 (H. Mitchell) (w); Smithfield, Cairns, 16°50'S, 145°41'E, 5.v.1997 (SKR #553) (w); Bellenden Ker, Cableway Base Stn, 17°16'S, 145°53'E, 17-24.x.1981 (GBM & Earthwatch Exp.) (w); Mission Bch, 17°45'S, 146°00'E, 10m, 29.ii.1996 (SKR #256) (w, ♀, ♂); Kirrama Ra., c. 9km W of Kennedy, 18°12'S, 145°52'E, c. 110m, 4.vi.1996 (RJK et al. accs 96.13, 14) (w); Hinchinbrook I., Gayundah Ck, <100m, 8-18.xi.1984 (GBM) (w); Paluma Ra., Little Crystal Ck, 29.ii.1996 (SKR #147) (w).

REMARKS. This species appears to be closely related to *P. seminervis* Donisthorpe from the Philippines and it shares with that species the parallel-sided petiole with rudimentary spines. However they differ in other aspects and, because of the considerable distance separating their distributions, I prefer to consider them distinct rather than as distant populations of a single species. The known distribution of the Australian species extends from Cape York Pen. south to Hinchinbrook I., while *P. seminervis* is known only from the Philippines and northern Borneo.

Polyrhachis (Cyrtomyrma) sp.
(*'Cyrt' 07'*)

MATERIAL. Davies Ck, 20km E of Mareeba, 17°02'S, 145°37'E, 15.vi.1980 (RJK acc. 80.19) (w).

REMARKS. The unusual colour scheme of this species sets it apart from all other Australian

members of the subgenus *Cyrtomyrma*. The reddish-brown body and honey-yellow gaster and appendages are peculiar in a subgenus in which most species are uniformly black. The small series from Davies Ck, collected by sweeping low vegetation along the rainforest edge, are the only known specimens.

Polyrhachis (Cyrtomyrma) sp.
(*'Cyrt' 08'*)

MATERIAL. Canopy Crane site, Cape Tribulation, 16°06'S, 145°27'E, 8.ix.1999 (N. Blüthgen #1002) (w); Black Mtn Rd, nr Kuranda, 16°47'S, 145°38'E, 21.vii.1980 (RJK acc. 80.103) (w); Davies Ck, 17km E of Mareeba, 17°01'S, 145°35'E, 15.vi.1980 (RJK acc. 80.20) (w); Palmerston NP, 17°37'S, 145°48'E, 350-400m, 2.i.1990 (GBM) (w); Mission Bch, 17°45'S, 146°00'E, 10m, 29.ii.1996 (SKR #253) (w, ♀); Upper Boulder Ck, 8km N of Tully, 17°49'S, 145°54'E, 100-500m, 4.xii.1989 (GBM, GT & HJ) (w).

REMARKS. This species closely resembles *P. yorkana*, however its considerably smaller size and rather well developed, although short, propodeal spines, set it well apart. It appears restricted to the Wet Tropics.

Polyrhachis (Cyrtomyrma) sp.
(*'Cyrt' 09'*)

MATERIAL. Kirrama Ra., c. 9km W of Kennedy, 18°12'S, 145°52'E, c. 110m, 4.vi.1996 (RJK et al. acc. 96.13) (w).

REMARKS. With a strongly transverse pronotal dorsum, featuring clearly bilobed shoulders, and well developed propodeal spines, this species stands relatively close to *P. levior* Roger, 1863 (= *laevissima* Fr. Smith, 1859) from Aru Islands. I consider it to be intermediate between that species and *P. australis* Mayr. The only known specimens were collected on a single occasion by sweeping and beating low rainforest foliage and other vegetation.

Subgenus **Hagiomyrma** Wheeler, 1911

Polyrhachis (Hagiomyrma) ammon
(Fabricius, 1775)

Formica ammon Fabricius, 1775: 394.
Polyrhachis ammon (Fabricius); Fr. Smith, 1858: 73.

MATERIAL. Hann Tblld, (Nth End), 16°48'S, 145°10'E, 950-1000m, 11-14.xii.1995 (GBM, GT & DJC) (w); Davies Ck NP, 17°31'S, 145°35'E, 7.vi.1996 (RJK & CJB); Mill Ck, above, 18°32'S, 146°11'E, 1000m, 5.ii.1999 (GBM & DJC) (w); Kirrama Ra., 18°10'S, 145°44'E, c. 600m, 26.viii.1987 (RJK acc. 87.97) (w); Mt Stuart summit, Townsville, c. 580m, 20.ii.1980 (BBI) (w).

REMARKS. *Polyrhachis ammon* is a widespread, common species along the eastern Australian seaboard. It ranges from north Queensland south to Victoria, however, it becomes rather uncommon towards the northern limits of its distribution. All localities within the Wet Tropics are at higher elevations.

***Polyrhachis (Hagiomyrma) crawleyi*
Forel, 1916**

Polyrhachis (Hagiomyrma) ammonoeides var. *crawleyi* Forel, 1916: 447.

Polyrhachis crawleyi Forel; Kohout, 1988b: 433. Raised to species.

MATERIAL. Cardwell, 14.ii.1992 (C.J. Hill) (w); Townsville, 3.xii.1901 (F.P. Dodd) (w, ♀).

REMARKS. This is a relatively rare, ground-nesting, species known from only a few isolated collections. It ranges from the Kimberley region in Western Australia to the Northern Territory, east along the Gulf of Carpentaria to Cape York Pen. and south to about Rockhampton.

***Polyrhachis (Hagiomyrma) lachesis*
Forel, 1897**

Polyrhachis lachesis Forel (in Emery), 1897: 582.

MATERIAL. Black Mtn, NW base, 15°40'S, 145°13'E, 10.vi.1996 (CJB) (w); Chewko Rd, 2-3km SW of Mareeba, 17°01'S, 145°24'E, 23-25.ii.2000 (RJK et al. accs 2000.41, 45, 53, 58, 59) (w, ♀, ♂); Mt Elliot NP, Alligator Ck, 19°26'S, 146°57'E, 11.vi.1987 (RJK acc.87.94) (w); Giru, c. 30km N, 28.iii.1980 (BBL) (w).

REMARKS. This species is uncommon with patchy distribution records ranging from Lakefield NP on Cape York Pen. south to Rundle Ra. near Gladstone. Like most *Hagiomyrma* species, it is a ground-nesting inhabitant of open forests and woodlands.

***Polyrhachis (Hagiomyrma) lydiae*
Forel, 1902**

Polyrhachis schenki r. *lydiae* Forel, 1902: 523.

Polyrhachis lydiae Forel; Kohout, 1988b: 434. Raised to species.

MATERIAL. Kirrama Ra., nr JCU Field Stn, c. 600m, 18°11'S, 145°44'E, 4.vi.1996 (RJK acc. 96.15) (w); Mt Elliot NP, Alligator Ck, 19°26'S, 146°57'E, 11.vi.1987 (RJK acc. 87.93) (w).

REMARKS. This species ranges along the eastern Australian coastline from north Queensland south to central New South Wales. It is common in open eucalypt forests and woodlands.

***Polyrhachis (Hagiomyrma) penelope* Forel, 1895
(Fig. 4D)**

Polyrhachis penelope Forel, 1895: 46.

MATERIAL. 10km NW of Ellis Bch, 16°40'S, 145°34'E, 8.vi.1996 (RJK et al. acc. 96.33) (w); Yarrabah, c. 11km E of Cairns, 16°56'S, 145°52'E, 22-24.vii.1980 (RJK acc. 80.121) (w); Chewko Rd, 2-3km SW of Mareeba, 17°01'S, 145°24'E, 23-25.ii.2000 (RJK et al. accs 2000.50, 52, 57, 60) (w, ♀); Mt Elliot NP, Alligator Ck, 19°26'S, 146°57'E, 11.vi.1987 (RJK acc. 87.88) (w); 1km E of Mingela, 19°53'S, 146°38'E, 5.i.1977 (BBL) (w).

REMARKS. *Polyrhachis penelope* was originally described from Mackay and its known range extends from Ellis Beach, just north of Cairns, south to about Rockhampton. It is rather uncommon and some previous records are undoubtedly referable to one of three closely related, as yet undescribed, species (*P. 'Hagio 04'*, *P. 'Hagio 11'* and *P. 'Hagio 14'* below).

***Polyrhachis (Hagiomyrma) schenckii*
Forel, 1886**

Polyrhachis schenckii Forel, 1886: 198.

MATERIAL. 3km SE of Annan R. Xing, 15°33'S, 145°14'E, 10.vi.1996 (RJK acc. 96.35) (w); Chewko Rd, 2-3km SW of Mareeba, 17°01'S, 145°24'E, 23-25.ii.2000 (RJK et al. accs 2000.54, 62) (w, ♀, ♂); Townsville, 21.x.1902 (F.P. Dodd) (w); 10km SW of Giru, 7.iii.1980 (BBL) (w).

REMARKS. *Polyrhachis schenckii* is an uncommon species originally described from Darnley I. in Torres Strait. It is now known from New Guinea, the Northern Territory, and Queensland from Cape York Pen. south to Clermont.

***Polyrhachis (Hagiomyrma) thusnelda*
Forel, 1902
(Figs 2D, 3C)**

Polyrhachis thusnelda Forel, 1902: 509.

MATERIAL. Cape Tribulation, Canopy Crane site, 16°06'S, 145°27'E, 8.ix.1999 (N. Blüthgen #1008) (w); Hann Tbl'd (Nth Base), 16°48'S, 145°12'E, 500m, 11-14.xii.1995 (GBM, GT & DJC) (w); Davies Ck, 15km E of Mareeba, 17°00'S, 145°34'E, 15.vi.1980 (RJK accs 80.26, 29) (w); Hidden Valley, Paluma Ra., xi.1997 (B. Hoffman) (w); Mt Stuart, Townsville, 19°21'S, 146°47'E, 12.iii.1993 (GBM) (w); Mt Elliot NP, St Margaret Ck nr Giru, 18.iv.1980 (BBL) (w);

REMARKS. *Polyrhachis thusnelda* is an uncommon species ranging from Cape Tribulation south to Mackay. It mostly inhabits open sclerophyll forests, but has also been collected from the canopy of lowland tropical rainforest.

Polyrhachis (Hagiomyrma) trapezoidea
Mayr, 1876

Polyrhachis trapezoidea Mayr, 1876: 72.

MATERIAL. 3km SE of Annan R. Xing, 15°33'S, 145°14'E, 10.vi.1996 (RJK acc. 96.35) (w); Black Mtn. NW base, 15°40'S, 145°13'E, 10.vi.1996 (CJB) (w); Bakers Blue Mtn, 17km W of Mount Molloy, 12.ix.1981 (GBM & DJC) (w); Chewko Rd, 2-3km SW of Mareeba, 17°01'S, 145°24'E, 23-25.ii.2000 (RJK et al. acc. 2000.51) (w); Mt Elliot NP, Alligator Ck, 19°26'S, 146°57'E, 2.ix.1977 (RJK acc. 77.5) (w).

REMARKS. *Polyrhachis trapezoidea* ranges from Torres Strait south to Rockhampton and also occurs in the Northern Territory. It is common in savannah woodlands and open forests.

***Polyrhachis (Hagiomyrma) tubifera* Forel,**
1902

Polyrhachis tubifera Forel, 1902: 517.

MATERIAL. Home Rule, 15°45'S, 145°17'E, c. 200m, 9-11.vi.1996 (RJK acc. 96.43) (w); Barratt Ck, 4km ESE of Daintree, 16°16'S, 145°21'E, 21.vii.1980 (RJK acc. 80.100) (w); 10km NW of Ellis Bch, 16°40'S, 145°34'E, 8.vi.1996 (RJK et al. acc. 96.33) (w); 1km NW of Buchan Point, 16°44'S, 145°39'E, 3-11.ii.1999 (GBM & DJC) (w); Hann Tblld, (Nth End), 16°48'S, 145°10'E, 11-14.xii.1995, 950-1000m (GBM, GT & DJC) (w, ♀, ♂); Chewko Rd, 2-3km SW of Mareeba, 17°01'S, 145°24'E, 23-25.ii.2000 (RJK et al. acc. 2000.46) (w); Davies Ck NP, 17°31'S, 145°35'E, 7.vi.1996 (RJK & CJB); Kirrama Ra., nr JCU Field Stn, c. 600m, 18°11'S, 145°44'E, 4.vi.1996 (RJK acc. 96.15) (w); Porter Ck, 23km SE of Cardwell, 18°26'S, 146°08'E, 26.ii.2000 (RJK et al. acc. 2000.66) (w); Hinchinbrook I., v.1998 (A.D. Cutter) (w); Wallaman Falls, 18°35'S, 145°48'E, 28.ix.1987 (RJK acc. 87.99) (w); Mt Elliot NP, Alligator Ck, 19°26'S, 146°57'E, 11.vi.1987 (RJK acc. 87.89) (w).

REMARKS. *Polyrhachis tubifera* occurs commonly from Iron Ra. on Cape York Pen. south to Coolool NP north of Brisbane.

Polyrhachis (Hagiomyrma) sp.
(*'Hagio 03'*)

MATERIAL. Townsville, 12.xi.1901 (W.W. Froggatt) (w); Townsville, 25.ix.1919 (G.F. Hill #H1119) (w); Major Ck, 22km SW of Giru, 25.v.1980 (BBL) (w, ♀).

REMARKS. This species was evidently regarded by Forel as *P. ammonoides* Roger. Specimens collected by E. Mjöberg at Laura on Cape York Pen. are lodged in MHNG, MNHU and NRMS and bear Forel's identification labels '*Polyrhachis ammonoides* Roger'. It ranges from Laura on Cape York Pen. south to Mackay. (A short series of alate ♀ were recently collected

at light at Virginia, near Darwin, Northern Territory (B. Hoffman).

Polyrhachis (Hagiomyrma) sp.
(*'Hagio 04'*)

MATERIAL. Mt Finnigan, summit, 1100m, 19-21.iv.1982 (GBM) (w); ditto, 28-30.xi.1985 (GBM, DJC & L. Roberts) (w, ♀); Thornton Peak, 16°10'S, 145°23'E, 1374m, viii.1984 (GBM) (w); Mt Bartle Frere, Sth Peak, 17°24'S, 145°49'E, 8.xi.1981 (GBM & Earthwatch Exp.) (w); Koomboolooma T'ship, 2.5km WSW, 17°50'S, 145°34'E, 740m, 4.ii.-15.iv.1999 (GBM & S.R. Monteith) (w); Cardwell Ra., Macalister Mts, 18°18'S, 145°55'E, 800-900m, 13-16.i.1987 (S. Hamlet) (w); Cardwell Ra., Upper Broadwater Ck, 17-21.xii.1986 (GBM, GT & S. Hamlet) (w).

REMARKS. This new species is restricted to high elevations including the 1600m summit of Mt Bartle Frere. It is relatively close to *P. penelope*, originally described from Mackay, but differs in a number of characters. I am confident that it represents a distinct species. It is endemic to the Wet Tropics.

Polyrhachis (Hagiomyrma) sp.
(*'Hagio 10'*)

MATERIAL. Black Mtn, NW base, 15°40'S, 145°13'E, 10.vi.1996 (CJB) (w); Home Rule, 15°45'S, 145°17'E, c. 200m, 9-11.vi.1996 (RJK acc. 96.43) (w); Mt Hartley, 15°46'S, 145°19'E, 200-500m, 11.vi.1996 (CJB) (w); Ellis Bch, 10km NW, 16°40'S, 145°34'E, 8.vi.1996 (RJK et al. acc. 96.33) (w); Sth Mission Bch, 6km W, 17°56'S, 146°02'E, 18-19.vii.1980 (RJK acc. 80.62) (w); Porter Ck, 23km SE of Cardwell, 18°26'S, 146°08'E, 26.ii.2000 (RJK et al. acc. 2000.66) (w); Hinchinbrook I., v.1998 (A.D. Cutter) (w).

REMARKS. This species ranges from Iron Ra. on Cape York Pen. south to about Ingham. It is a common species in low altitude open forests.

Polyrhachis (Hagiomyrma) sp.
(*'Hagio 11'*)

MATERIAL. Davies Ck, 15km E of Mareeba, 17°00'S, 145°34'E, 15.vi.1980 (RJK acc. 80.25) (w); 1km E of Mingela, 19°53'S, 146°38'E, 5.i.1977 (BBL) (w).

REMARKS. This widespread species ranges from the Kimberley region of North Western Australia and Northern Territory to northern Queensland where it occurs from Cape York Pen. south to Rundle Ra. near Gladstone. It is another close relative of *P. penelope* Forel (see *P. 'Hagio 04'* above). It is relatively common in open woodlands.

***Polyrhachis (Hagiomyrma)* sp.**
(*'Hagio 14'*)

MATERIAL. Davies Ck, 3km of Kennedy Hwy, nr Mareeba, 3.viii.1975 (BBL) (w).

REMARKS. A small series of workers collected by B.B. Lowery at Davies Ck are the only known specimens of this species. It is closely related to *P. penelope* Forel and particularly to *P. denticulata* Karavaiev from New Guinea, which was only recently reported from Mabuiag I. in Torres Strait (Kohout & Taylor, 1990:541). The collection locality is open forest.

***Polyrhachis (Hagiomyrma)* sp.**
(*'Hagio 16'*)

MATERIAL. Paluma, 18km W, 3.ii.1980 (BBL) (w); Hervey Ra., Turtle Rock area, 19°24'S, 146°31'E, c. 500m, 3.vi.1996 (RJK et al. accs 96.10, 11) (w).

REMARKS. The distribution of this new species extends from Paluma Ra. south to Rockhampton and westwards to Carnarvon Gorge.

***Polyrhachis (Hagiomyrma)* sp.**
(*'Hagio 17'*)

MATERIAL. Herberton, 10km W, c. 17°23'S, 145°17'E, 15.ix.1981 (BBL) (w); Porter Ck, 23km SE of Cardwell, 18°26'S, 146°08'E, 26.ii.2000 (RJK et al. acc. 2000.67) (w).

REMARKS. This species is close to *P. lydiae* from Mackay, however its structural characters and colour clearly show it to be distinct. It inhabits a wide variety of habitats, from the savannah woodlands on the western slopes of Atherton Tbl, to coastal *Melaleuca* swamps. It is apparently endemic to the Wet Tropics.

***Polyrhachis (Hagiomyrma)* sp.**
(*'Hagio 18'*)

MATERIAL. Windsor Tbl, 28km NNW of Mt. Carbine, c. 16°15'S, 145°02'E, 15-18.iv.1982 (GBM, D. Yeates & DJC) (w).

REMARKS. A rare species which is known from three, widely separated populations, the northern on Windsor Tbl and the two southern ones on Blackdown Tbl and Mt Moffat NP. All are high altitude, open forest localities.

***Polyrhachis (Hagiomyrma)* sp.**
(*'Hagio 20'*)

MATERIAL. Hann Tbl (Nth End), 16°48'S, 145°10'E, 950-1000m, 11-14.xii.1995 (GBM, GT & DJC) (w, ♀); Paluma, 12km W, 3.ii.1980 (BBL) (w).

REMARKS. This species is related to *P. ammon* (Fabricius). However, the relatively small, quadrate, pronotal dorsum and its dense pubescence and pilosity clearly distinguish it. It is known only from two separate populations within the Wet Tropics.

***Polyrhachis (Hagiomyrma)* sp.**
(*'Hagio 21'*)

MATERIAL. Paluma, 18km W, c. 800m, 23.iii.1981 (BBL) (w); Mt Elliot NP, North Ck, 500-800m, 2.xii.1986 (GBM, GT & S. Hamlet) (w); Mt Elliot, N ridge, 19°29'S, 146°58'E, 790m, 5.vii.1977 (RWT acc. 77.240) (w).

REMARKS. In general appearance this species is very similar to *P. trapezoidea* Mayr, however the petiole lacks the characteristic sloping dorsum of the latter species. Specimens from Paluma differ slightly from those from Mt Elliot, but I am confident they only represent a different population of a single species. It is evidently endemic to the Wet Tropics.

Subgenus ***Hedomyrma*** Forel, 1915

Polyrhachis (Hedomyrma) argentosa
Forel, 1902
(Fig. 2E)

Polyrhachis daemeli r. *argentosa* Forel, 1902: 515.
Polyrhachis argentosa Forel; Kohout, 1988b: 431. Raised to species.

MATERIAL. Mt Hartley, 15°46'S, 145°19'E, 500-700m, 11.vi.1996 (CJB) (w); Mt Lewis, Upper Leichhardt Ck, 16°35'S, 145°16'E, 840m, 18.xi.1997 (GBM) (w); Kuranda, 16°50'S, 145°37'E, 5.iii.1992 (H. Reichel) (w); Whitfield Ra., 16°57'S, 145°42'E, 500m, 26.viii.1991 (GBM & HJ) (w); Davies Ck, 17km E of Mareeba, 17°01'S, 145°35'E, 15.vi.1980 (RJK acc. 80.21) (w); Bellenden Ker, Cableway Base Stn, 17°16'S, 145°53'E, 17-24.x.1981 (GBM & Earthwatch Exp.) (w); Etty Bay, 7km ESE of Innisfail, 17°35'S, 146°05'E, 23.vii.1980 (RJK acc. 80.157) (w); Palmerston NP, Crawfords Lookout, 17°38'S, 145°49'E, 23.vii.1980 (RJK acc. 80.154) (w); Forty Mile Scrub NP, 18°05'S, 144°53'E, 25.viii.1996 (JPH) (w); Karama Ra., 18°11'S, 145°52'E, 19.ii.2000 (RJK acc. 2000.4) (w); Seaview Ra., Mt Fox Crater, 18°51'S, 145°48'E, 15.xii.1986 (GBM, GT & S. Hamlet) (w); Paluma Ra., Little Crystal Ck, 29.ii.1996 (SKR #144) (w); Mt Elliot NP, North Ck, 500-800m, 2.xii.1986 (GBM, GT & S. Hamlet) (w).

REMARKS. This species extends from south of Cooktown to Rundle Ra. near Gladstone. It inhabits rainforests and wet sclerophyll forests, but has also been collected from higher altitude open forests. Like most *Hedomyrma* it is a lignicolous species nesting mostly in hollow twigs and small branches.

Polyrhachis (Hedomyrma) barretti
Clark, 1928

Polyrhachis (Hedomyrma) barretti Clark, 1928: 170.

MATERIAL. Mt Hedley, 1-2km N of Home Rule, 15°45'S, 145°17'E, 200-300m, 11.vi.1996 (RJK et al. acc. 96.44) (w); Mt Hartley, 15°46'S, 145°19'E, 500-700m, 11.vi.1996 (CJB) (w); Oliver Ck, c. 8km SW of Cape Tribulation, 16°08'S, 145°26'E, 14.vi.1996 (RJK acc. 96.53) (w); Barratt Ck, 4km ESE of Daintree, 16°16'S, 145°21'E, 21.vii.1980 (RJK acc. 80.99) (w); Port Douglas, viii.1928 (C.L. Barrett) (*barretti* syntype w MVMA); Ellis Beh, 10km NW, 16°40'S, 145°34'E, 8.vi.1996 (RJK et al. acc. 96.33) (w); Black Mtn Rd, 4km N of Kuranda, 16°47'S, 145°38'E, 21.vii.1980 (RJK acc. 80.108) (♀); Yarrabah, c. 9km E of Cairns, 16°54'S, 145°51'E, 22-24.vii.1980 (RJK acc. 80.116) (w); 'The Boulders', 6km W of Babinda, 17°21'S, 145°52'E, 20.vii.1980 (RJK acc. 80.98) (w); Mission Beh, 2km W, 17°52'S, 146°05'E, 18-19.vii.1980 (RJK acc. 80.86, 92) (w); Stn Mission Beh, 6-10km W, 17°56'S, 146°02'E, 18-19.vii.1980 (RJK acc. 80.61) (w); Porter Ck, 23km SE of Cardwell, 18°26'S, 146°08'E, 26.ii.2000 (RJK et al. acc. 2000.4) (w, ♀).

REMARKS. *Polyrhachis barretti* is known from Cape York Pen, south to Mission Beach. It is common in suitable localities along edges of lowland rainforest.

Polyrhachis (Hedomyrma) cleopatra
Forel, 1902

Polyrhachis cleopatra Forel, 1902: 513.

MATERIAL. Kirrama Ra., 18°11'S, 145°44'E, 29.ii.1996 (SKR #155) (w); Hervey Ra., Turtle Rock area, 19°24'S, 146°31'E, 24.ix.1995 (SKR #17) (w); Mt Elliot NP, St Margaret Ck, 19°29'S, 147°01'E, 23.ix.1995 (SKR #9) (w).

REMARKS. *Polyrhachis cleopatra* is relatively uncommon and many past records from the Wet Tropics are, in fact, referable to a new species (*P. 'Hedo' 13'* below). Both are predominantly rainforest species, but have also been recorded from wet sclerophyll and open forest localities. *P. cleopatra* appears to be centred on the greater Mackay area, including the Whitsundays, with only a few confirmed records from the southern limits of the Wet Tropics area.

***Polyrhachis (Hedomyrma) clio* Forel, 1902**

Polyrhachis clio Forel, 1902: 515.

MATERIAL. Hann Tbl'd (Nth End), 16°49'S, 145°11'E, 1000m, 13.xii.1995 (GBM, GT & DJC) (w); Atherton Tbl'd, Yungaburra region, Tolga Scrub, iv.1996 (A. Cutter & J. King) (w); Bellenden Ker, Cableway Base Stn, 17°16'S, 145°54'E, 17-24. ix. 1981 (GBM & Earthwatch Exp.) (w); Ety Bay, 7km ESE of Innisfail, 17°33'S, 146°05'E, 23. vii. 1980 (RJK acc. 80.157) (w).

REMARKS. This is a rainforest species favouring areas along the edges of lowland rainforest. It is known from Iron Ra. on Cape York Pen. south to Brunswick Heads in northern New South Wales, and from the Northern Territory.

***Polyrhachis (Hedomyrma) clotho* Forel, 1902**

Polyrhachis clotho Forel, 1902: 525.

Polyrhachis clotho Forel; Kohout & Taylor, 1990: 512. Combination in *P. (Hedomyrma)*.

MATERIAL. Mt Elliot NP, Alligator Ck, 19°26'S, 146°57'E, 2.ix.1977 (RJK acc. 77.6) (w).

REMARKS. *Polyrhachis clotho* ranges from Lakefield NP on Cape York Pen. south to Mackay. It inhabits coastal open forests and woodlands.

Polyrhachis (Hedomyrma) cupreata
Emery, 1895
(Fig. 4E)

Polyrhachis hermione var. *cupreata* Emery, 1895: 357.

Polyrhachis (Hedomyrma) daemeli var. *exlex* Forel, 1915: 110. Synonymy by Kohout, 1988b: 433.

Polyrhachis cupreata Emery; Kohout, 1988b: 433. Raised to species.

MATERIAL. Mt Hedley, 1-2km N of Home Rule, 15°45'S, 145°17'E, 200-300m, 11.vi.1996 (RJK et al. acc. 96.44) (w); Home Rule, 15°45'S, 145°17'E, c. 200m, 9-11.vi.1996 (RJK et al. acc. 96.43) (w, ♀); Pilgrim Sands, c. 1km NW of Cape Tribulation, 16°04'S, 145°26'E, 12-15.vi.1996 (RJK et al. acc. 96.47) (w); Canopy Crane site, Cape Tribulation, 16°06'S, 145°27'E, 20-21.ii.2000 (RJK acc. 2000.19) (w); Ellis Beh, 10km NW, 16°40'S, 145°34'E, 8.vi.1996 (RJK et al. acc. 96.33) (w); Trinity Beh, 17km NNW of Cairns, 16°47'S, 145°41'E, 13.v.1974 (RJK acc. 74.30) (w, ♀); Cairns (M. Podenzana) (*cupreata* holotype w MCSN); Yarrabah (E. Mjöberg) (*daemeli exlex* holotype w NRMS); Yarrabah, c. 9km E of Cairns, 16°54'S, 145°51'E, 22-24.vii.1980 (RJK acc. 80.115) (w); Whitfield Ra. Environ. Park, 16°57'S, 145°42'E, 4.ii.1992 (H. Reichel) (w); Pine Ck CSIRO Tower, Yarrabah Rd, 16°59'S, 145°50'E, 12.iv.1991 (GBM & HJ) (w); Bell Peak North, 20km S of Cairns, 17°05'S, 145°53'E, 16.ix.1981 (GBM & DJC) (w); Russell R., Bellenden Ker Landing, 17°16'S, 145°56'E, 1-9.xi.1981 (GBM & Earthwatch Exp.) (w); Mission Beh, c. 2km W, 17°52'S, 146°05'E, 18-19.vii.1980 (RJK acc. 80.94) (w); Cardwell Ra., Murray R. Falls, 18°09'S, 145°49'E, 1-5.viii.1983 (RJK acc. 83.2) (w).

REMARKS. This species ranges from Torres Strait south to about Ingham, with additional records from the Northern Territory. It is common in coastal wetlands and *Melaleuca* swamps, but it has also been collected from the canopy of lowland tropical rainforest.

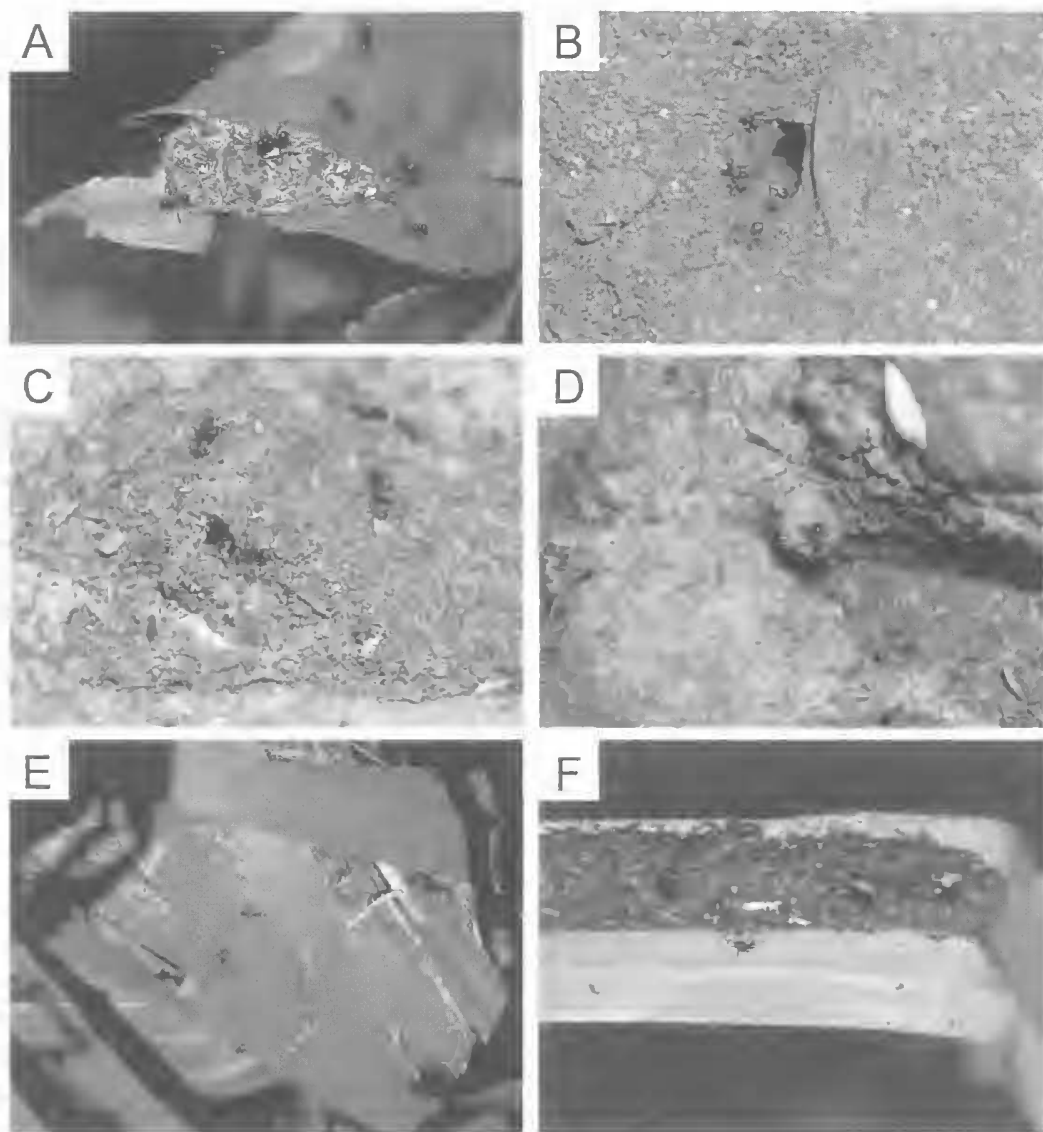


FIG. 3. Nests of Wet Tropics *Polyrhachis* species. A, *P. (Cyrtonomyrma) yorkana*; B, *P. (Chariomyrma) sokolova*; C, *P. (Hagiomyrma) thusnelda*; D, *P. (Hedomyrma) turneri*; E, *P. (Myrmhopla) dives*; F, *P. (Myrmhopla) mucronata*.

Polyrhachis (Hedomyrma) daemeli
Mayr, 1876

Polyrhachis daemeli Mayr, 1876: 72.

MATERIAL. Hann Tbl'd Radar Stn, 16°55'S, 145°15'E, 950m, 26-27.xi.1998 (GBM) (w); Trinity Bch, 17km NNW of Cairns, 16°47'S, 145°41'E, 13.v.1974 (RJK acc. 74.27) (w); Walsh R. at Watsonville, 17°21'S, 145°19'E,

750m, 1.xii.1997 (GBM, DJC & CJB) (w); Cardwell Ra., Murray R. Falls, 18°09'S, 145°49'E, 1-5.viii.1983 (RJK acc. 83.3) (w); Paluma Ra., Hidden Valley, ix.1997 (B. Holliman) (w).

REMARKS. This is a common species between Mackay and Brisbane, however records become somewhat sporadic towards the northern limits of its distribution.

Polyrhachis (Hedomyrma) erato* Forel, 1902Polyrhachis erato* Forel, 1902: 512.*Polyrhachis aeschyle* Forel, 1915: 111. Synonymy by Kohout, 1988b: 434.

MATERIAL. Atherton Tblld, N of Lake Tinaroo, c. 2500ft, 9.xi.1966 (RWT acc. 66.334) (w); Bartle Frere, S Peak summit, 17°24'S, 145°49'E, 1620m, 29.xi.1998 (GBM) (♀); Cedar Ck (E. Mjöberg) (*aeschyle* holotype w NRMS).

REMARKS. Besides the holotype of *P. aeschyle* only a short series of this species from Lake Tinaroo and a single dealate queen from the summit of South Peak of Bartle Frere are known from the Wet Tropics. Like the previous species, it is much more common and widespread in the south, from Mackay to Lamington NP on the Queensland-New South Wales border.

Polyrhachis (Hedomyrma) euterpe* Forel, 1902Polyrhachis euterpe* Forel, 1902: 511.

MATERIAL. Dimbulah, 17°09'S, 145°07'E, 4.v.1990 (BBL) (w); Townsville, Pallarenda, 19°11'S, 146°46'E, 14.x.1981 (BBL) (w).

REMARKS. This is a rare species with a patchy distribution from northern to southern Queensland. It occupies savannah woodlands and open forests along the eastern slopes of the Great Dividing Range.

Polyrhachis (Hedomyrma) hermione* Emery, 1895Polyrhachis hermione* Emery, 1895: 357.

(For full synonymy citations see Kohout, 1998: 514.)

MATERIAL. Kuranda, vi.1904 (F.P. Dodd) (w); Bellenden Ker (M. Podenzana) (*hermione* syntype w MCSN, MHNG); Kirrama Ra., c. 9km W of Kennedy, 18°12'S, 145°52'E, 29.ii.1996 (SKR #153) (w); Hinchinbrook I., Gayundah Ck, 18°21'S, 146°14'E, 100-500m, 9.xi.1984 (GBM) (w).

REMARKS. *Polyrhachis hermione* is a rare rainforest species only known from a few isolated collections within the Wet Tropics.

Polyrhachis (Hedomyrma) machaon* Santachi, 1920Polyrhachis (Hedomyrma) machaon* Santachi, 1920: 568.

MATERIAL. Townsville, vi.1902 (F.P. Dodd) (*machaon* holotype w NHMB).

REMARKS. The unique holotype of *P. machaon* is the only specimen known from the Wet Tropics. All recently collected specimens originate from central and southern Queensland

and northern New South Wales with the species apparently restricted to mangroves (De Baar & Hockey, 1987: 20).

Polyrhachis (Hedomyrma) mjobergi* Forel, 1915Polyrhachis (Hedomyrma) mjobergi* Forel, 1915: 112.*Polyrhachis (Hedomyrma) anguliceps* Viehmeyer, 1925: 148. Synonymy by Kohout, 1988b: 435.

MATERIAL. Kirrama Ra., nr JCU Field Str., c. 600m, 18°11'S, 145°44'E, 4.vi.1996 (RJK acc. et al. 96.15) (w).

REMARKS. This is the only record of *P. mjobergi* from the Wet Tropics and considerably extends its known range. It was originally described from Lamington NP in southern Queensland and from Trial Bay (*anguliceps* Viehmeyer) in northern New South Wales. Its main distribution range extends from near Mackay south to Batemans Bay.

Polyrhachis (Hedomyrma) ornata* Mayr, 1876Polyrhachis ornata* Mayr, 1876: 73.*Polyrhachis (Hedomyrma) humerosa* Emery, 1921: 18. Synonymy by Kohout, 1988b: 435.*Polyrhachis (Hedomyrma) chrysorhax* Viehmeyer, 1925: 148. Synonymy by Kohout, 1988b: 435.

MATERIAL. Windsor Tblld, SE, 16°16'S, 145°05'E, 850m, 9.ii.-17.v.1998 (GBM & DJC) (w).

REMARKS. A single specimen from Windsor Tblld significantly extends the range of this species. In the northern specimen the characteristic bright copper or brassy pubescence of the mesosomal dorsum is considerably less distinct, but in all other aspects it matches the abundant material of *P. ornata* from southern Queensland.

Polyrhachis (Hedomyrma) rufifemur* Forel, 1907Polyrhachis terpsichore* var. *rufifemur* Forel, 1907: 41.*Polyrhachis terpsichore* var. *elegans* Forel, 1910: 84. Synonymy by Kohout, 1988b: 436.

MATERIAL. Mt Spurgeon, 3km S, 16°27'S, 145°11'E, 19-23.xi.1997 (GBM, CJB & DJC) (w); Hann Tblld (Nth End), 16°49'S, 145°11'E, 1000m, 11-14.xii.1995 (GBM, GT & DJC) (w); Hann Tblld Radar Stn, 16°55'S, 145°15'E, 950m, 26-27.xi.1998 (GBM, P. Bouchard & A. O'Toole) (w); Bakers Blue Mtn, 17km W of Mount Molloy, 16°42'S, 145°09'E, 12.ix.1981 (GBM & DJC) (w); Kuranda, nr Cairns (R. Turner) (*terpsichore elegans* syntype w MHNG); Millstream Cons. Park, 17°32'S, 145°29'E, 1040m, 6.xii.1998-4.ii.1999 (GBM & DJC) (w).

REMARKS. As indicated earlier (Kohout, 1988b: 436), specimens of the northern

populations (*terpsichore elegans*) tend to be larger with less distinct and more diluted pubescence than specimens from southeast Queensland and New South Wales.

***Polyrhachis (Hedomyrma) thais* Forel, 1910**

Polyrhachis thais Forel, 1910: 86.

MATERIAL. Kuranda, nr Cairns (R. Turner) (*thais* syntype w MHNG); Mission Bch, 17°52'S, 146°06'E, 29.ii.1996 (SKR #226, 227) (w); Sth Mission Bch, 2km NbyW, 17°55'S, 146°05'E, 18-19.vii.1980 (RJK acc. 80.80) (w); Kirmara Ra., 18°11'S, 145°52'E, 19.ii.2000 (RJK acc. 2000.4) (w); Wallaman Falls, 18°35'S, 145°48'E, 28.ix.1987 (RJK acc. 87.101) (w); Crystal Ck NP, 18°59'S, 146°09'E, 330m, 11.i.1977 (BBL) (w, ♀); Mt Elliot NP, North Ck, 500-800m, 2.xii.1986 (GBM, GT & S. Hamlet) (w).

REMARKS. This is a relatively rare rainforest species apparently endemic to the Wet Tropics.

Polyrhachis (Hedomyrma) turneri

Forel, 1895
(Figs 2F, 3D)

Polyrhachis turneri Forel, 1895: 45.

MATERIAL. Black Mtn, NW base, 15°40'S, 145°13'E, 10.vi.1996 (CJB) (w); Hann Tblld (Nth Base), 16°48'S, 145°12'E, 500m, 11-14.xii.1995 (GBM, GT & DJC) (w); Yarrabah, c. 9km E of Cairns, 16°54'S, 145°51'E, 22-24.vii.1980 (RJK acc. 80.115) (w); Bakers Blue Mtn, 17km W of Mount Molloy, 16°42'S, 145°09'E, 12.ix.1981 (GBM & DJC) (w); Wallaman Falls, 18°35'S, 145°48'E, 28.ix.1987 (RJK acc. 87.102) (w); Paluma Ra., Hidden Valley, xi.1997 (B. Hoffman) (w); Mt Stuart, Townsville, 19°21'S, 146°47'E, 12.iii.1993 (GBM) (w); Hervey Ra., Turtle Rock area, 19°24'S, 146°31'E, 24.ix.1995 (SKR #16) (w); Mt Elliot NP, Alligator Ck, 19°26'S, 146°57'E, 11.vi.1987 (RJK acc. 87.90) (w).

REMARKS. *Polyrhachis turneri* is known from Torres Strait south to Mackay. It selects rock crevices in which to build its nests which are characterised by pure white, tubular, silken entrances.

Polyrhachis (Hedomyrma) sp.

(*'Hedo 05'*)

MATERIAL. Mt Cook NP, 15°29'S, 145°16'E, 430m, 9.xi.1995 (GBM, DJC & HJ) (w); East Normanby R., 15°53'S, 145°12'E, 540m, 31.xii.1990 (GBM & ANZSES Exp.) (w); Downey Ck, 17°40'S, 145°47'E, c. 400m, 7.vii.1971 (RWT acc. 71.1136) (w); Wallaman Falls Rd Junct., 18°39'S, 145°52'E, 650m, 5.ii.1996 (GBM) (w).

REMARKS. This is a rare, rainforest or wet sclerophyll forest species, collected only occasionally by sweeping and beating low foliage or by pyrethrum spraying. Known distribution is patchy and extends from Mt Cook

near Cooktown south to Cooloolool NP north of Brisbane.

Polyrhachis (Hedomyrma) sp.

(*'Hedo 07'*)

MATERIAL. Mt Cook NP, 15°29'S, 145°16'E, 430m, 9.xi.1995 (GBM, DJC & HJ) (w); Mt Hartley, 15°46'S, 145°19'E, 500-700m, 11.vi.1996 (CJB) (w); Cape Tribulation, 16°05'S, 145°28'E, 29.xii.1983-8.i.1984 (GBM) (w); Oliver Ck, c. 8km SW of Cape Tribulation, 16°08'S, 145°26'E, 14.vi.1996 (RJK acc. 96.53) (w); Kuranda, 16°49'S, 145°38'E, 10-20.vii.1976 (P. Filewood) (w); Yarrabah, c. 9km E of Cairns, 16°54'S, 145°51'E, 22-24.vii.1980 (RJK acc. 80.115) (w); Bellenden Ker, Cableway Base Stn, 17°16'S, 145°54'E, 17-24.x.1981 (GBM & Earthwatch Exp.) (w); Josephine Falls, 17°26'S, 145°51'E, 12.ii.1996 (GBM) (w); Eubenangee Swamp, nr Innisfail, 17°27'S, 145°58'E, <100ft, 4.xi.1966 (RWT acc. 66.257) (w); Palmerston NP, 350-400m, 2.i.1990 (GBM) (w); Sth Mission Bch, 2km Nby W, 17°55'S, 146°05'E, 18-19.vii.1980 (RJK acc. 80.80).

REMARKS. This species superficially resembles *P. thais* Forel but differs in a number of characters, including distinctly longer pronotal spines that in *P. thais* are reduced to more-or-less pointed angles. The distribution of both species is apparently limited to the Wet Tropics.

Polyrhachis (Hedomyrma) sp.

(*'Hedo 09'*)

MATERIAL. Mt Elliot NP, North Ck, 500-800m, 2.xii.1986 (GBM, GT & S. Hamlet) (w, ♀); Mt Elliot NP, St Margaret Ck, 19°30'S, 146°59'E, 23.ix.1995 (SKR #8) (w).

REMARKS. This spectacular species appears to be restricted to Mt Elliot NP.

Polyrhachis (Hedomyrma) sp.

(*'Hedo 13'*)

MATERIAL. Mt Hartley, 15°46'S, 145°19'E, 200-500m, 11.vi.1996 (CJB) (w); Pilgrim Sands, c. 1km NW of Cape Tribulation, 16°04'S, 145°26'E, 12-15.vi.1996 (RJK et al. acc. 96.47) (w); Cape Tribulation, 16°05'S, 145°28'E, 19.x.1980 (GBM) (w); Hann Tblld, 16°55'S, 145°15'E, 950m, 26-27.xi.1998 (GBM) (w); Daintree, 4mi S, 29.x.1966 (RWT acc. 66.122) (w); Caravonica, 10km NW of Cairns, 16°51'S, 145°41'E, 19.ii.2000 (RJK acc. 2000.8) (w); Etty Bay, 7km ESE of Innisfail, 17°35'S, 146°05'E, 23.vii.1980 (RJK acc. 80.157) (w); Mission Bch, 2km W, 17°52'S, 145°05'E, 18-19.vii.1980 (RJK acc. 80.93) (w); Kirmara Ra., 18°11'S, 145°52'E, 19.ii.2000 (RJK acc. 2000.4) (w).

REMARKS. This species resembles *P. cleopatra*, but differs in a number of characters. These include the first gastral tergite which is smooth and shining with only a weak indication of a lateral process. In *P. cleopatra* the first gastral

tergite is intensively longitudinally sculptured with a very distinct lateral process. This is predominantly a rainforest species and appears endemic to the Wet Tropics.

Subgenus **Myrma** Billberg, 1820
Polyrhachis relucens species-group

Polyrhachis (Myrma) foreli Kohout, 1989
(Fig. 4F)

Polyrhachis foreli Kohout, 1989: 510.

**Polyrhachis (Myrma) relucens* r. *andromache* var. *andromeda* Forel, 1915: 110.

**Polyrhachis (Myrma) relucens andromache andromeda* Forel; Taylor, 1986: 34. Unavailable name.

MATERIAL. Helenvale, 15°42'S, 145°13'E, 10-20.vii.1976 (P. Filewood) (w); Home Rule, 15°45'S, 145°17'E, 9-11.vi.1996, c. 200m (RJK et al. acc. 96.43) (w); Mt Hartley, 15°46'S, 145°19'E, 200-500m, 11.vi.1996 (CJB) (w); Shiptons Flat, 35km S of Cooktown, 15°48'S, 145°16'E, 22.iv.1982 (GBM) (w); Mt Finnigan, via Helenvale, 15°50'S, 145°16'E, 19-21.iv.1982 (GBM) (♀); Gap Ck. Twelve-Mile Scrub, 15°50'S, 145°19'E, 27.xi.1975 (V. Davies & R. Monroe) (w); Emmagen Ck, 16°03'S, 145°27'E, 19-28.ix.1982 (GBM, D. Yeates, GT) (w); Pilgrim Sands, c. 1km NW of Cape Tribulation, 16°04'S, 145°28'E, 12-15.vi.1996 (RJK et al. acc. 96.47) (w); Cape Tribulation, 16°05'S, 145°28'E, 29.xii.1983-8.i.1984 (GBM) (w); Canopy Crane site, Cape Tribulation, 16°06'S, 145°27'E, 20-21.ii.2000 (RJK accs 2000.18, 21, 22, 28) (w, ♀); Yarrabah, c. 9km E of Cairns, 16°54'S, 145°51'E, 22-24.vii.1980 (RJK acc. 80.119) (w); Bell Peak North, 20km S of Cairns, 17°05'S, 145°53'E, 16.ix.1981 (GBM & DJC) (w); Bellenden Ker (E. Mjöberg) (**relucens andromache andromeda* w MHNQ, NRMS); Russell R., Bellenden Ker Landing, 17°16'S, 145°54'E, 1-9.xi.1981 (GBM & Earthwatch Exp.) (w); Seymour Ra., c. 7km N of Innisfail, 17°28'S, 146°01'E, <100m, 5-6.vi.1996 (RJK et al. acc. 96.29) (w, ♀, ♂); Etty Bay, 29.ix.1996 (JPH) (♀); NE Tully, nr Clump Point, 17°52'S, 146°07'E, 30.iv.1969 (RWT acc. 69.123) (*foreli* holotype & paratype w, ♀, ♂); Sth Mission Beh, c. 6km W, 17°56'S, 146°02'E, 18-19.vii.1980 (RJK acc. 80.60) (*foreli* paratype w); Hinchinbrook I., Gayundah Ck, 18°21'S, 146°14'E, 100-500m, 8-18.xi.1984 (GBM) (w).

REMARKS. This species ranges from New Guinea south through Cape York Pen. to the Wet Tropics. It is a rainforest species commonly nesting in rotting logs or in the ground (Kohout, 1989: 510; 1998: 521).

Subgenus **Myrmatopa** Forel, 1915

Polyrhachis (Myrmatopa) lombokensis
Emery, 1898
(Fig. 4H)

Polyrhachis lombokensis Emery, 1898: 239.

Polyrhachis (Myrmatopa) lombokensis var. *yarrabahensis* Forel, 1915: 115.

Polyrhachis yarrabahensis Forel; Kohout & Taylor, 1990: 520. Raised to species.

Polyrhachis yarrabahensis Forel; Bolton, 1995: 359; Dorow, 1995: 45. Syn. nov.

MATERIAL. Home Rule, 15°45'S, 145°17'E, c. 200m, 9-11.vi.1996 (RJK et al. accs 96.41, 49, 50) (w, ♀); Pilgrim Sands, c. 1km NW of Cape Tribulation, 16°04'S, 145°28'E, 12-15.vi.1996 (RJK et al. acc. 96.50) (w); Canopy Crane site, Cape Tribulation, 16°06'S, 145°27'E, 20-21.ii.2000 (RJK acc. 2000.37) (w); Kamerunga, 10km NW of Cairns, 16°53'S, 145°41'E, 13.vii.1960 (G.W. Saunders) (w); Yarrabah (E. Mjöberg) (*yarrabahensis* syntype w MHNQ, NRMS); Yarrabah, c. 11km E of Cairns, 16°56'S, 145°52'E, 22-24.vii.1980 (RJK accs 80.125, 126, 127, 133, 135, 136, 137, 144, 145, 148, 151) (w, ♀); Seymour Ra., c. 7km N of Innisfail, 17°28'S, 146°01'E, <100m, 5-6.vi.1996 (RJK et al. acc. 96.24) (w); Canal Ck, nr Innisfail, 23.v.1993 (L.R. Ring) (w, ♀).

REMARKS. When Kohout & Taylor (1990) raised *P. (Myrmatopa) lombokensis yarrabahensis* to specific status they noted that the characters separating both taxa were relatively slight, but seemingly constant. They were hesitant to synonymize both names because of the great distance separating their respective distribution ranges with no material known to them from the intermediate areas. However, after examining the remaining specimens of Emery's syntype series, which has only recently become available, I now regard both forms synonymous. The characters listed by Kohout & Taylor seem to integrate and I have no hesitation in considering *P. yarrabahensis* and *P. lombokensis* isolated populations of a single biological species. The distribution of this species in Australia is centred on the Wet Tropics, with only a single additional record from Massey Spur Ck on Cape York Pen. (J.L. Wassell). Its occurrence in Papua New Guinea has also been recently confirmed by discovery of a single series collected on Misima I. (Rev. H.K. Bartlett).

Subgenus **Myrmhopla** Forel, 1915
Polyrhachis dives species-group

Polyrhachis (Myrmhopla) dives
Fr. Smith, 1857
(Figs 3E, 4G)

Polyrhachis dives Fr. Smith, 1857: 64.

Polyrhachis (Myrmhopla) exulans Clark, 1941: 91. Synonymy by Kohout, 1988b: 433.

(For full synonymy citations see Bolton, 1995: 347).

MATERIAL. Yarrabah, c. 11km E of Cairns, 16°56'S, 145°52'E, 22-24.vii.1980 (RJK accs 80.113, 130, 141) (w, ♀, ♂); South Mission Beh, 2km NbyW, 17°55'S, 146°05'E, 13.vi.1980 (RJK accs 80.14, 15, 17, 18) (w, ♀).

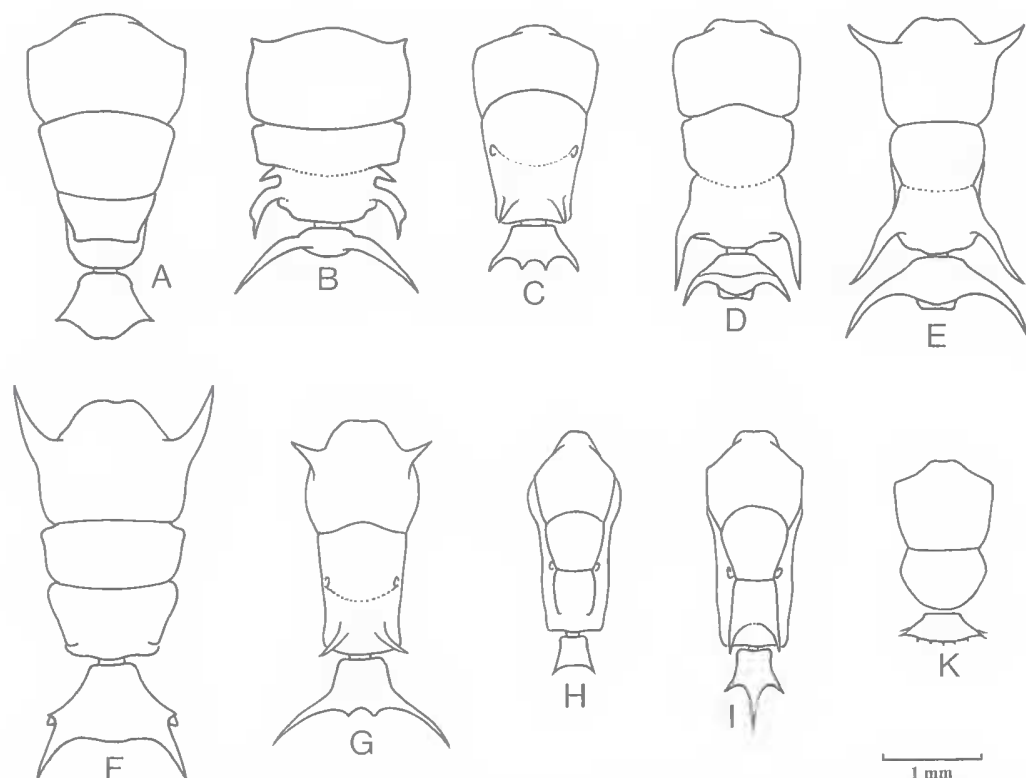


FIG. 4. *Polyrhachis* spp, dorsal view of mesosoma and petiole in outline (pilosity omitted): A, *P. (Campomyrma) creusa*; B, *P. (Charionomyrma) schoopae*; C, *P. (Cyrtomyrma) australis*; D, *P. (Hagiomyrma) penelope*; E, *P. (Hedomyrma) cupreata*; F, *P. (Myrma) foreli*; G, *P. (Myrmhopla) dives*; H, *P. (Myrmatopa) lombokensis*; I, *P. (Myrmothrinax) queenslandica*; K, *Echinopla australis*.

REMARKS. This is a widespread species, ranging from south-east Asia south to northern Australia, where it is known from two, widely separated populations, one around Darwin in the Northern Territory and the other in North Queensland, where it ranges from Cairns south to about Mission Beach. It prefers open woodlands and swampy coastal plains.

***Polyrhachis mucronata* species-group**
Polyrhachis (Myrmhopla) mucronata
 Fr. Smith, 1859
 (Fig. 3F)

Polyrhachis mucronatus Fr. Smith, 1859: 140.

MATERIAL. Mt Hedley, 1-2km N of Home Rule, 15°45'S, 145°17'E, 200-300m, 11.vi.1996 (RJK et al. acc. 96.44) (w); Cedar Bay NP, 15°48'S, 145°19'E, 16.vi.1997 (SKR #589) (w); Pilgrim Sands, c. 1km NW of Cape Tribulation, 16°04'S, 145°28'E, 12-15.vi.1996 (RJK et al. acc. 96.47) (w); Cape Tribulation NP, 16°04'S, 145°27'E, 6.xii.1985 (RJK acc. 85.5) (w, ♀); Canopy Crane site,

Cape Tribulation, 16°06'S, 145°27'E, 20-21.ii.2000 (RJK accs 2000.17, 21) (w, ♀); McLean Ck, c. 19km SbyW of Cape Tribulation, 16°15'S, 145°26'E, 15.vi.1996 (RJK acc. 96.54) (w); Bellenden Ker, Cableway Base Stn, 17°16'S, 145°54'E, 17-24.x.1981 (GBM & Earthwatch Exp.) (w); Russell R., Bellenden Ker Landing, 17°16'S, 145°56'E, 1-9.xi.1981 (GBM & Earthwatch Exp.) (w); Josephine Falls, 17°26'S, 145°51'E, 12.ii.1996 (GBM) (w); Seymour Ra., c. 7km N of Innisfail, 17°28'S, 146°01'E, <100m, 5-6.vi.1996 (RJK et al. 96.31) (w, ♀); Mission Bch, 17°45'S, 146°00'E, 10m, 20.i.1996 (SKR #101) (w); Dunk I., 17°57'S, 146°09'E, viii.1927 (H. Hacker) (♀); Hinchinbrook I., Gayundah Ck, 18°21'S, 146°14'E, 100-500m, 8-18.xi.1984 (GBM) (w).

REMARKS. *Polyrhachis mucronata* ranges from eastern Indonesia and New Guinea south to northern Queensland. The specimens from Australia and New Guinea differ somewhat from the holotype and other available material from Indonesia, however, for the purpose of this paper I regard them as a different populations of a single biological species. It is a common arboreal

species in the monsoon rainforests of Cape York Pen. and the lowland rainforests of the Wet Tropics where it reaches the southern limit of its distribution.

Polyrhachis viehmeyeri species-group
Polyrhachis (Myrmhopla) rustica
 Kohout, 1990

Polyrhachis rustica Kohout, 1990: 505.

MATERIAL. Chewko Rd, SW of Mareeba, 17.vi.1961 (L.H. Weatherill) (*rustica* paratype w BMNH).

REMARKS. The holotype of this species was described from Collinsville and the above specimen represents the only record from the Wet Tropics. These ants apparently co-exist in the nests of other ants, namely *Rhytidoponera* spp. (Kohout, 1990:499-508) and this behaviour is presently under investigation by Drs Alfred Buschinger (Darmstadt) and Ulrich Maschwitz (Frankfurt am Main) (pers. comm.).

Subgenus **Myrmothrinax** Forel, 1915

Polyrhachis (Myrmothrinax) delicata
 Crawley, 1915

Polyrhachis delicata Crawley, 1915: 238.

Polyrhachis (Myrmothrinax) lysistrata Santschi, 1920: 569.
 Synonymy by Kohout, 1994: 135.

MATERIAL. Home Rule, 15°45'S, 145°17'E, c. 200m, 9-11.vi.1996 (RJK et al. accs 96.37, 38, 42, 43) (w, ♀); Mt Finlay, Fritz Ck, 15°50'S, 145°21'E, 5.xii.1975 (V. Davies & R. Monroe) (♀); Canopy Crane site, Cape Tribulation, 16°06'S, 145°27'E, 20-21.ii.2000 (RJK acc. 2000.38) (w); Yarrabah, c. 9km E of Cairns, 16°54'S, 145°51'E, 22-24.vii.1980 (RJK accs 80.124, 128, 139, 140, 142, 143) (w, ♀, ♂); Mission Bch, 2km W, 17°52'S, 146°05'E, 18-19.vii.1980 (RJK acc. 80.88) (w); Townsville, 30.iv.1902 (F.P. Dodd) (*lysistrata* syntype w NHMB).

REMARKS. This species ranges from the Northern Territory to north Queensland, as far south as Townsville. Like the following species, it is an arboreal nesting ant, building its polydomous nests upon the leaves of trees along the edges of lowland tropical rainforests.

Polyrhachis (Myrmothrinax) queenslandica
 Emery, 1895
 (Fig. 4I)

Polyrhachis queenslandica Emery, 1895: 356.

MATERIAL. Kamerunga (M. Podenzana) (*queenslandica* syntype w MCSN, MHNG); Bellenden Ker, Cableway Base Stn, 17°16'S, 145°54'E, 17-24.x.1981 (GBM & Earthwatch Exp.) (w); Canal Ck, nr Innisfail, 23.v.1993 (L.R. Ring) (w, ♀, ♂); Sth Mission Bch, c. 6km W, 17°56'S, 146°02'E, 18-10.vii.1980 (RJK accs 80.68, 69, 71, 72, 73, 74) (w).

REMARKS. This species ranges south from New Guinea to northern Queensland. Its nesting habits are identical to the closely related *P. delicata*, however, *P. queenslandica* is much less common.

Genus **Echinopla** Fr. Smith, 1857

Echinopla australis Forel, 1901
 (Fig. 4K)

Echinopla australis Forel, 1901b: 75.

MATERIAL. Mt Hedley, Home Rule, 15°45'S, 145°17'E, c. 200m, 9-11.vi.1996 (RJK et al. acc. 96.43) (w); Pilgrim Sands, c. 1km NW of Cape Tribulation, 16°04'S, 145°26'E, 12-15.vi.1996 (RJK et al. acc. 96.51) (w, ♂); Canopy Crane site, Cape Tribulation, 16°06'S, 145°27'E, 9.ii.2000 (N. Blüthgen #3049) (w); Mossman Bluff Track, 5-10km W of Mossman, c. 16°28'S, 145°19'E, 1-16.i.1990 (GBM, GT & ANZSES) (w); Yarrabah, c. 9km E of Cairns, 16°54'S, 145°51'E, 22-24.vii.1980 (RJK acc. 80.120) (w); ditto, 1.iii.1996 (SKR #164) (w); Mulgrave R., Deeral Landing, 17°13'S, 145°55'E, 4.viii.1975 (tall mangroves) (BBL) (w); Eddy Bay, 7km ESE of Innisfail, 17°33'S, 146°05'E, 23.viii.1980 (RJK acc. 80.155) (w); Palmerston NP, 17°37'S, 145°40'E, 400m, 4.v.1997 (SKR) (w); Crystal Ck NP, nr Paluma, 19°00'S, 146°13'E, 11.i.1977 (BBL) (w); Cape Cleveland, c. 30km N of Giru, 8.ix.1980 (BBL) (w).

REMARKS. *Echinopla australis* is predominantly a rainforest species. However a colony from Pilgrim Sands was nesting in a dry hollow seedpod of *Calophyllum inophyllum* on the beach front. It occurs from New Guinea south to near Mackay.

Echinopla turneri Forel, 1901

Echinopla turneri Forel, 1901b: 76.

Echinopla turneri var. *pictipes* Forel, 1901b: 76. Synonymy by Taylor, 1992: 61.

MATERIAL. Crystal Creek NP, nr Paluma, 19°00'S, 146°13'E, 11.i.1977 (BBL) (w); Mt Elliot NP, Pangola Park, 30.v.1980 (BBL) (w); Mt Elliot NP, St Margaret Ck, 3.xii.1980 (BBL) (w, ♀).

REMARKS. *Echinopla turneri* is also a rainforest species, nesting mostly in hollow twigs and small branches. It ranges from the Paluma Ra. south to Yeppoon. Distinguishing characters of both *Echinopla* species, together with notes on their distribution and biology, were given by Taylor, 1992: 60-61.

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